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CALIFORNIA STATE COLLEGES

SAN DIEGO STATE COLLEGE

GENERAL CATALOG & ANNOUNCEMENT OF COURSES

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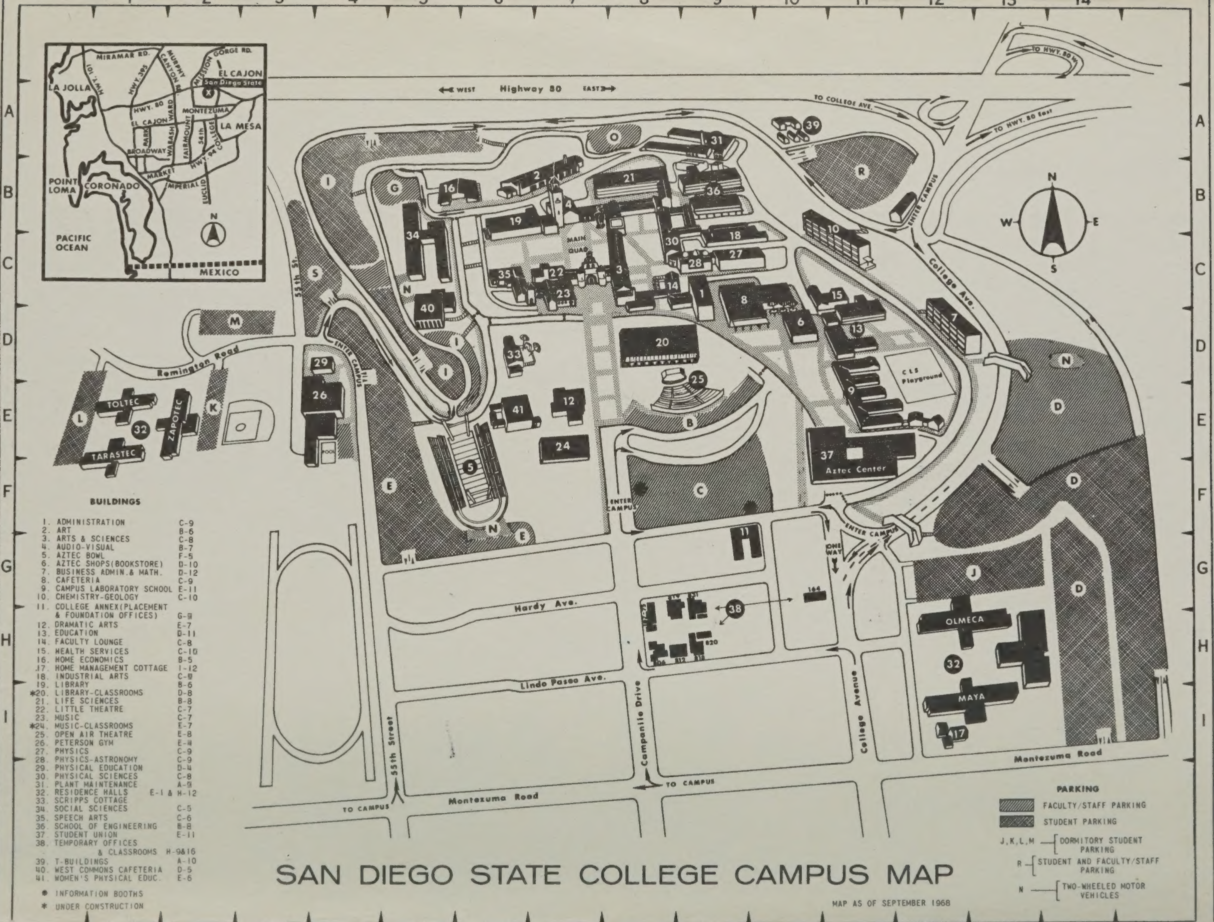
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2.	ART	B-6
3.	ARTS & SCIENCES	C-8
4.	AUDIO-VISUAL	B-7
5.	AZTEC BOWL	F-5
6.	AZTEC SHOPS(BOOKSTORE)	D-10
7.	BUSINESS ADMIN.& MATH.	D-12
8.	CAFETERIA	C-9
9.	CAMPUS LABORATORY SCHOOL	E-11
10.	CHEMISTRY-GEOLOGY	C-10
11.	COLLEGE ANNEX(PLACEMENT & FOUNDATION OFFICES)	G-9
12.	DRAMATIC ARTS	E-7
13.	EDUCATION	D-11
14.	FACULTY LOUNGE	C-8
15.	HEALTH SERVICES	C-10
16.	HOME ECONOMICS	B-5
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18.	INDUSTRIAL ARTS	C-9
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*20.	LIBRARY-CLASSROOMS	D-8
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22.	LITTLE THEATRE	C-7
23.	MUSIC	C-7
*24.	MUSIC-CLASSROOMS	E-7
25.	OPEN AIR THEATRE	E-8
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30.	PHYSICAL SCIENCES	C-8
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● INFORMATION BOOTHS

* UNDER CONSTRUCTION

SAN DIEGO STATE COLLEGE CAMPUS MAP

MAP AS OF SEPTEMBER 1968

PARKING

▨	FACULTY/STAFF PARKING
▩	STUDENT PARKING
J,K,L,M	DORMITORY STUDENT PARKING
R	STUDENT AND FACULTY/STAFF PARKING
N	TWO-WHEELED MOTOR VEHICLES

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SAN DIEGO STATE COLLEGE

SAN DIEGO, CALIFORNIA

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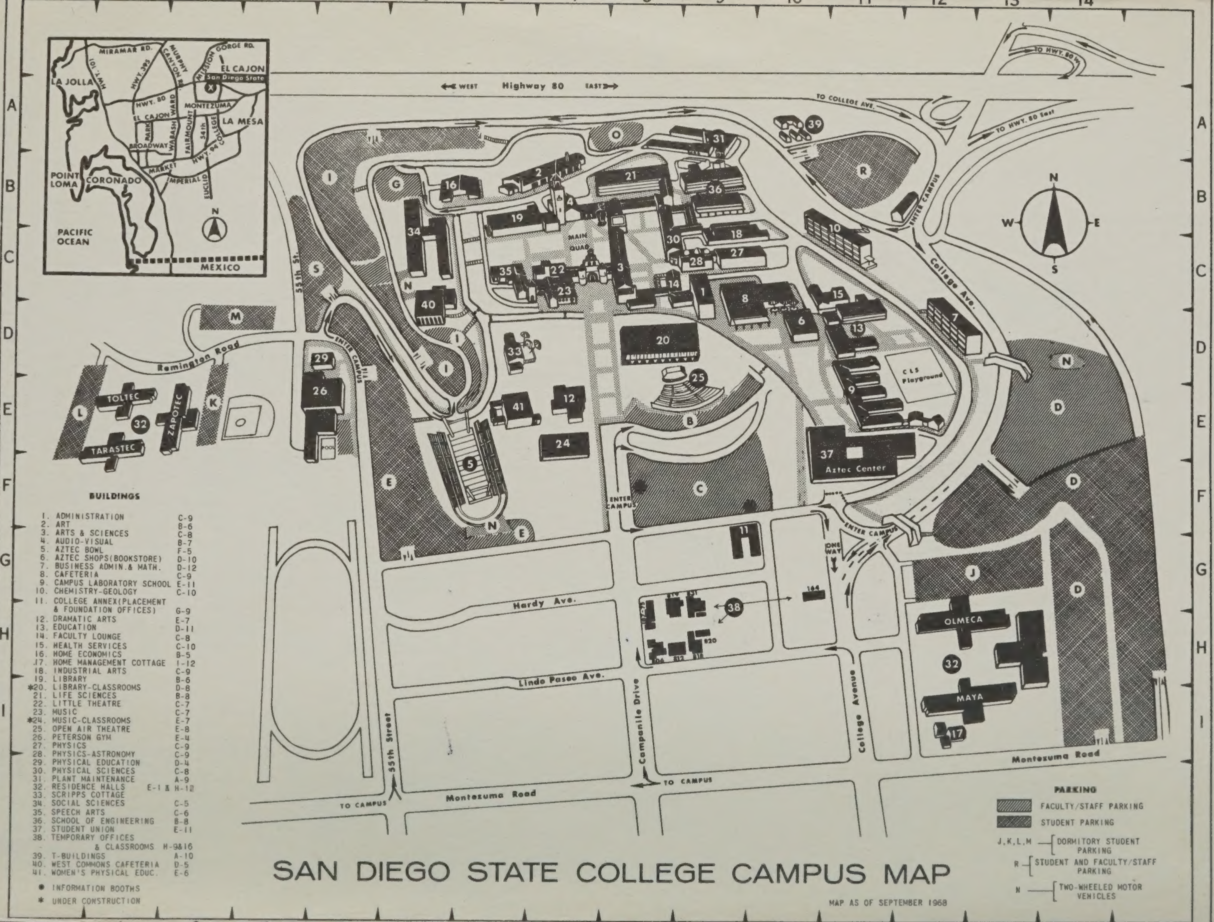
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38.	TEMPORARY OFFICES & CLASSROOMS	H-9&16
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41.	WOMEN'S PHYSICAL EDUC.	E-6

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General Catalog

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ANNOUNCEMENT OF COURSES

VOLUME 55

APRIL 1968

SAN DIEGO STATE COLLEGE

SAN DIEGO, CALIFORNIA

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THE COLLEGE

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1968–1969 ACADEMIC CALENDAR

SUMMER SESSIONS, 1968

June 10–21	Intersession (2 weeks).
June 24–August 2	Term I summer session (6 weeks).
August 5–23	Term II summer session (3 weeks).

FALL SEMESTER, 1968

July 15	Last day to file application for admission or readmission to the college for the fall semester.
July 20, August 17 and 31	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 60 units or more. Reservation for tests made at time of application for admission to the college.
September 10	Mathematics placement examinations 8:30 a.m.–12 noon, for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Economics 2.
September 11	Mechanical Drawing test, 8 a.m.–12 noon.
September 14	Fundamentals test for transfer students entering elementary or kindergarten-primary education 9:00 a.m.–11:00 a.m.
September 16	Opening date of the academic year.
September 16–20	Testing, advising, residency clearance, and registration week.
September 16	Mathematics placement examinations 1–4:00 p.m., for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Ecomonics 2.
September 17–20	Registration, payment of fees, advising, and enrollment in classes.
September 23	First day of classes.
September 24	File applications for admission to teacher education. Assembly, 11 a.m.
September 28	Fundamentals test, 9:00–11:00 a.m.
October 7	Last day to apply for refunds.
October 11	Last day to withdraw from class without penalty for unsatisfactory work.
October 11	Last day to file application for the bachelor's degree for mid-year graduation.
November 2 and December 7	Comprehensive College Tests, general examinations for students entering secondary education.
November 9	End of seventh week of classes. Deficiency notices due.
November 11	Holiday—Veterans' Day.
November 22	Last day to withdraw from class or change program.
November 28–30	Thanksgiving recess.
December 6	Last day to file application for the bachelor's degree for June or summer graduation.
December 14	Last day of classes before Christmas recess.
December 16–January 1	Christmas recess.
January 2	Classes resume.
January 8	Last day for a complete withdrawal from college.
January 17	Last day of classes before final examinations.
January 20–21	Study and consultation.
January 22	First day of final examinations.
January 31	Last day of the fall semester.

Academic Calendar

SPRING SEMESTER, 1969

December 15	Last day to file application for admission or readmission to the college for the spring semester.
December 17, January 4 and February 3	Admissions tests for spring semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
January 25	Fundamentals test for transfer students entering elementary or kindergarten-primary education, 9:00–11:00 a.m.
February 1	Mechanical Drawing test.
February 3	First day, second semester.
February 3–7	Testing, advising, residency clearance, and registration week.
February 3	Mathematics placement examinations, 8 a.m.–1 p.m., for students planning to enroll in Math. 3, 4, 12, 20, 21, 40, 50; or Ecomonics 2.
February 4–7	Registration, payment of fees, advising, and enrollment in classes.
February 10	First day of classes.
February 11	File applications for admission to teacher education. Assembly, 11 a.m.
February 12	Holiday—Lincoln's birthday.
February 15	Fundamentals test, 9 a.m.–11 a.m.
February 22	Holiday—Washington's birthday.
February 24	Last day to apply for refunds.
February 28	Last day to withdraw from class without penalty for unsatisfactory work.
March 8 and April 19	Comprehensive College Tests, general examinations for students entering secondary education.
March 28	End of seventh week of classes. Deficiency notices due.
March 29	Last day of classes before spring recess.
March 31–April 4	Spring recess.
April 7	Classes resume.
April 11	Last day to withdraw from classes or change program.
May 3, June 14 and 28	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 60 units or more. Reservation for tests made at time of application for admission to the college.
May 4	San Diego State College Founder's Day.
May 21	Last day for a complete withdrawal from college.
May 29	Last day of classes before final examinations.
May 30	Holiday—Memorial Day.
June 2–3	Study and consultation.
June 4	First day of final examinations.
June 8	Baccalaureate services.
June 13	Commencement. Last day of the spring semester.

SUMMER SESSIONS, 1969

June 16–27	Intersession (2 weeks).
June 30–August 8	Term I summer session (6 weeks).
August 11–29	Term II summer session (3 weeks).

SCHEDULE OF FEES

Fees are subject to change by The Trustees of the California State Colleges.

FEES PAYABLE AT TIME OF REGISTRATION (PER SEMESTER)

Fees for more than six units:

Materials and service	$43.00
Student activity fee	9.50
Student Union Fee	7.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	$59.50

Fees for six units or less:

Materials and service	22.00
Student activity fee	4.75
Student Union Fee	3.50
Auditors pay same fees as students carrying courses for credit.	
Total required fees	$30.25

Tuition for nonresident student:

(In addition to materials and service, activity, and student union fees)

Nonresident student enrolled for 15 units or more	360.00
Nonresident student enrolled for less than 15 units, or fraction thereof (per unit)	24.00

(For fee-paying purposes, zero unit courses are counted as one unit)

Tuition for visa-foreign student (as prescribed by regulations):

(In addition to materials and service, activity, and student union fees)

Foreign student enrolled for 15 units or more	127.50
Foreign student enrolled for less than 15 units or fraction thereof (per unit)	8.50

(For fee-paying purposes, zero unit courses are counted as one unit)

Parking fees:

Students carrying more than six units	13.00
Students carrying six units or less	6.00
Each alternate car in addition to first vehicle	1.00
Two wheeled, self-propelled vehicle:	
Student carrying more than six units	3.25
Student carrying six units or less	1.50

MISCELLANEOUS FEES

(Fees payable when service is rendered)

Application for admission or readmission (non-refundable)	10.00
Late registration	5.00
Change of program	1.00
Failure to meet administratively required appointment or time limit	2.00
Transcript of record (first copy free)	1.00
R.O.T.C. deposit (unexpended portion is refundable)	10.00
Check returned for any cause	2.00
Studio lesson, per lesson per student 1.00 to	6.00
Current fee per semester (15 40-minute lessons)	75.00
Organ practice	10.00
Loss or damage of equipment and library books	Cost

Schedule of Fees

REGULAR SESSION FEE REFUNDS

Materials and service fees:

To be eligible for partial refunds of materials and service fees, a student withdrawing from college must file an application with the Business Office not later than 14 days following the day of the term when instruction begins: and provided, further, that the amount of $10 shall be retained to cover the cost of registration.

Nonresident and foreign student tuition:

Tuition paid for a course scheduled to continue for an entire semester may be refunded in accordance with the following schedule if application therefor is received by the Business Office within the following time limits:

Time limit	*Amount of refund*
(1) Before or during the first week of the semester	100 percent of fee
(2) During the second week of the semester	90 percent of fee
(3) During the third week of the semester	70 percent of fee
(4) During the fourth week of the semester	50 percent of fee
(5) During the fifth week of the semester	30 percent of fee
(6) During the sixth week of the semester	20 percent of fee

Parking fee:

This schedule of refunds refers to calendar days, commencing on the date of the term when instruction begins:

Nonreserved space per semester:

Period	*Amount of refund*
1-30 days	75 percent of fee
31-60 days	50 percent of fee
61-90 days	25 percent of fee
91-end of term	None

The late registration fee is not refundable.

The Business Office should be consulted for further refund details.

SUMMER SESSION FEES

Tuition, each session	(per unit)	$21.00
Activity fee each session (Fee for Term II will be waived if student paid the fee in Term I of the same summer.)		1.00
Student union fee (required), Term I		3.50

Parking fees:

Nonreserved spaces:

Six-week session		5.00
Other sessions of one week or more	(per week)	1.00

EXTENSION COURSE FEES

Lecture or discussion course	(per unit)	15.00
Activity course	(per unit)	19.00
Science laboratory course	(per unit)	30.00

EXEMPTIONS

Students under Public Law 894, 87-815, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

ORGANIZATION AND ADMINISTRATION

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Appointments are for a term of eight years expiring March 1 on dates in parentheses. Names are listed in order of accession to the Board.

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Los Angeles, California 90036
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THE CALIFORNIA STATE COLLEGES

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213 532-4300

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Fullerton, California 92631
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Hayward, California 94542
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Long Beach, California 90804
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5151 State College Drive
Los Angeles, California 90032
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Turlock, California 95380
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Bakersfield, California 93304
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805 327-9101

THE CALIFORNIA STATE COLLEGES

The California State Colleges are a unique development of the democratic concept of tax-supported public higher education for all qualified students.

Spanning the state from Humboldt County in the north to San Diego in the south, the 18 campuses of the California State Colleges (with another campus soon to be constructed) represent the largest system of public higher education in the Western Hemisphere and one of the largest in the world. Current enrollment exceeds 188,000 full and part-time students. The faculty and administrative staff numbers approximately 10,000.

The individual colleges, each with a geographic, curricular and academic character of its own, offer a solid basic program in the liberal arts. Beyond this, each college is noted for its individuality in academic emphasis which makes for a diversified system. Course offerings leading to the bachelor's and master's degree are designed to satisfy existing student interests and to serve the technical and professional manpower requirements of the state.

The California State Colleges are dedicated to rigorous academic standards. Constant striving for academic excellence is at the heart of the system. The primary responsibility of each faculty within the system is the instructional process on the teacher-student level, with appropriate recognition of the necessary and constructive role of research in any institution of higher education.

Responsibility for the California State Colleges is vested in the Board of Trustees, which is appointed by the Governor, and the Board's administrative arm, the Chancellor. The Trustees and the Chancellor set broad policy for the colleges while delegating considerable independent responsibility for implementation at the college level. A statewide Academic Senate, made up of representatives elected by the faculty at each college, acts as a consultative body to the Chancellor in the area of academic affairs.

Although the oldest of the colleges, San Jose State College, dates back a century, the California State College system under an independent Board of Trustees was created by the Donahoe Act of 1960. Formerly, the colleges were under the jurisdiction of the State Board of Education.

Today, the California State Colleges are in a particularly dynamic period of their development. Prior to World War II, there were seven State Colleges with a peak total enrollment of some 13,000. Since 1947, eleven new colleges have been established and sites have been selected for new colleges in Kern, Ventura, San Mateo and Contra Costa counties. Enrollment in the system is expected to reach 225,000 by 1970.

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Social Research Center	Aubrey Wendling, Director

THE COLLEGE

THE COLLEGE
SPECIAL PROGRAMS AND SERVICES
STUDENT SERVICES
STUDENT ACTIVITIES AND HOUSING
LOANS AND SCHOLARSHIPS

THE COLLEGE

PURPOSES OF THE COLLEGE

The primary purpose of San Diego State College is to provide instruction for undergraduate and graduate students, through the bachelor's and master's degrees, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. The doctoral degree is awarded jointly with the University of California.

The programs at San Diego State are designed to aid the student to develop his powers of critical, independent thought and to become aware of the main streams of our Nation's cultural, social, and scientific traditions; to inform him of the political ideas and ideals that have built our Democracy and to stimulate in him an interest in participation in civic life; and to equip him with the knowledge and skills necessary to meet the needs of California and the Nation for competence and leadership.

To achieve these purposes San Diego State College offers:

1. Student personnel services to assist the individual student to plan his educational program and to make progress toward the attainment of immediate and long range goals.
2. General and liberal education for students whose studies lead toward the bachelor's degree or to the higher professions through graduate work.
3. Undergraduate and graduate curricula in teacher education for those students who plan to teach, supervise or administer in California's public schools.
4. Preprofessional curricula for fields such as medicine, dentistry, theology, and law.
5. Four-year curricula in such fields as business, industry, engineering, governmental services, homemaking, and social service.
6. Extension courses in appropriate fields.
7. Courses at the graduate level designed to lead to advanced degrees in a variety of fields.

GROWTH OF THE COLLEGE

San Diego State College is a dynamic institution that looks with pride to more than a half century of continued progress. From its humble founding in 1897 under a local board of trustees, it became a four-year teacher's college in 1921 under the State Board of Education, and in 1935 the liberal arts San Diego State College. With the advent of the California State College system in 1960 it became one of eighteen state colleges under the jurisdiction of a Board of Trustees and chancellor.

During the first year of its existence, the college, with a faculty of seven and a student enrollment of 91, occupied temporary quarters in downtown San Diego. The following year it moved to a new campus on University Heights in a central area of the city. By 1931, growth of the college made necessary another move, this time to its permanent campus of several hundred acres in the eastern part of San Diego, 12 miles from beach resorts and within a short drive of mountain and desert recreational sites. It lies one mile north of El Cajon boulevard, and just south of Interstate 8 on College Avenue. San Diego provides the cultural opportunities usually found in cities of over 650,000.

The original group of buildings to be erected on the campus is of Spanish colonial architecture characteristic of early California. During its recent years of explosive growth, San Diego State has enjoyed the support of a community alert to its educational needs. To serve the rapidly expanding student population, which now numbers 20,000, many new buildings of modern design have been added. The institution now has classrooms, laboratories, and other facilities covering over a million and a half square feet. Buildings include the following: Administration, Arts and Sciences, Aztec Center, Business Administration and Mathematics, Chemistry-Geology, Campus Laboratory School, Dramatic Arts, Education, Engineering, Fine Arts, Home Economics, Home Management Residence, Industrial Arts, Library, Life Sciences, Little Theatre, Music, Peterson Gymnasium (men), Physics-Astronomy, Physical Education, Physical Sciences, Speech Arts, Social Sciences, Women's Physical Education, Residence Halls, Residence Commons, Commons East, and the West Commons (cafeterias), Aztec Shops Bookstore, and Health Service; also included are the Greek Bowl, Track Field, Aztec Bowl (stadium), Scripps Cottage (student lounge and outdoor recreational center), a faculty lounge and cafeteria.

FACULTY

The college faculty numbers over 1,200 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished not only in terms of formal education, but also represents a wide variety of practical experience in business, industry, and the teaching profession. Both past and recent contributions to publications and research are extensive and impressive. For listings and further details see the Faculty Directory.

LIBRARY

The library resources and services of the college for study and research are noteworthy. The book collection consists of 400,000 volumes. It is supplemented by these additional materials: 125,000 federal and state documents, 340,000 microcards, microfiches and microfilms, 25,000 college catalogs, 49,000 curriculum materials, 17,000 scientific reports and 30,000 pamphlets, archival papers and other graphic informational materials. The library receives 6,000 periodical and other serial publications exclusive of government documents. Additional research resources on campus include: Public Administration Laboratory, 38,000 items, Economic Research Center, 30,000 items, Geography and Geology departments, 48,000 maps, and International Relations Center, 12,000 items.

Expert reference librarians assist students and faculty in their reading, study, and research. To aid the student to develop his powers of critical, independent thought through wide acquaintance with books, the library has an open shelf arrangement which gives direct access to nearly all books.

Facilities for 2,200 readers are provided in the central library. Typing rooms, group study rooms, microform reading rooms, listening facilities, exhibit areas and individual study carrels are provided. Inexpensive copying machines are available.

ACCREDITATION

San Diego State College is a member of the following educational associations:

Western College Association
American Association of Colleges for Teacher Education
American Association of Collegiate Schools of Business
Council of Graduate Schools in the United States
Council on Social Work Education
Engineers' Council for Professional Development
National Association of Schools of Music
National League for Nursing
Western Association of Graduate Schools

Through membership in these associations, San Diego State College is fully accredited. It is also accredited by the National Council for Accreditation of Teacher Education and by the California State Board of Education. It is on the approved list of the American Chemical Society and is approved by the Veterans Administration for the education of veterans.

DEGREES AND CERTIFICATES

San Diego State College offers the following degrees and certificate:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Education (or Vocational Education)
- Doctor of Philosophy in Chemistry (with University of California, San Diego)
- Master of Arts
- Master of Science
- Master of Business Administration
- Master of City Planning
- Master of Social Work

A nondegree program leading to the Certificate in Public Administration is offered by the Political Science Department.

TYPES OF CURRICULA OFFERED

San Diego State offers the following types of curricula:

UNDERGRADUATE CURRICULA. Undergraduate curricula provide the following opportunities for study:

(1) Liberal arts and sciences: Curricula in the academic major fields, leading to the Bachelor of Arts degree in liberal arts and sciences.

(2) Applied arts and sciences: Curricula in major fields leading to the Bachelor of Science or Bachelor of Arts degree in applied arts and sciences.

(3) Professional curricula: The School of Business Administration offers the Bachelor of Science degree in business administration with majors in eight fields; the School of Engineering offers the Bachelor of Science degree in engineering with specialization available in four fields; and the School of Education offers curricula in teacher education leading to graduate credentials at all levels of public school teaching.

(4) Preprofessional and nondegree curricula: Programs are offered in predentistry, prelegal, and premedical, leading to transfer to professional schools. A nondegree program is offered in public service, leading to the Certificate in Public Administration. The Air Force offers an ROTC program, leading to a commission in the Air Force Reserve.

GRADUATE CURRICULA. The Graduate Division offers curricula leading to the Master of Arts or Master of Science degree in a wide variety or fields, the Master of Business Administration, the Master of City Planning, the Master of Social Work, and a joint-doctoral program in chemistry.

ACADEMIC YEAR

San Diego State operates on the semester plan. The academic year, which consists of two semesters of 18 weeks each, begins in September and ends in June. The academic year is defined in the State Administrative Code, Chapter 5, Section 42800, as follows: "The beginning date of the academic year of the college shall be Monday of the week preceding the week that class instruction is scheduled to begin in the regular fall session, and the ending date shall be the second calendar day following the last day that final examinations are regularly scheduled for the following spring semester." Dates for the current academic year are carried in the calendar in this catalog.

PUBLICATIONS

The *General Catalog*, which is published annually in April, may be purchased at the Aztec Shops Bookstore on the campus. The current price is $1.00 plus tax and mailing costs. The catalog carries information on admissions, fees and tuition, programs and degrees, courses, scholarships, residence halls, student services and activities, and a faculty directory.

The *Graduate Bulletin*, issued in April of each year, is available without cost to the applicant upon request made to the Graduate Office. The bulletin gives complete information on all graduate programs.

The *Summer Sessions Bulletin*, issued each April, carries information on the ensuing summer terms. The bulletin includes an application form, information on admission and registration, fees, living accommodations in residence halls, courses, institutes, workshops, and study tours. Write to the Summer Sessions Office for a free bulletin.

The *Extension Courses Bulletin* is issued prior to each semester by the Office of Extended Services. This bulletin gives information on courses and programs to be offered in the next semester. It will be mailed upon request without charge by the Office of Extended Services.

For a *Bulletin of the Imperial Valley Campus*, write to the Director, Imperial Valley Campus, 720 Heber Avenue, Calexico, California. This bulletin carries information on admissions, courses, and programs. It is available prior to the opening of each semester and will be mailed free of charge upon request.

The *Class Schedule and Instructions for Registration* is published prior to the opening of each semester and may be purchased at the Aztec Shops Bookstore on the campus. The current price is 25¢, subject to change. An additional charge of ten cents is made for mailing. Address requests to the Bookstore.

The Daily Aztec, a student newspaper, is issued daily in regular semesters and once a week in Term I Summer Session. The cost of the paper is included in the student activity fee. *Del Sudoeste*, the campus yearbook, is published at the close of the spring semester. It is sold at the Bookstore or may be obtained at a reduced price when ordered in advance. A *Student Handbook* is published at the beginning of the academic year and is distributed free of charge to new students at time of registration or may be obtained from the Office of the Dean of Activities. It contains information on scholastic and social life, services offered, customs of the college, and other material designed to encourage the student to participate fully in the life of the college. The *Alumni News* is published monthly by the Alumni Association and distributed to its members.

Special bulletins and brochures are issued at irregular intervals by the various divisions and offices of the college. Information on these special publications which may be currently available may be obtained by writing to the Office of Publications and Public Relations.

SPECIAL PROGRAMS
AND SERVICES

SPECIAL PROGRAMS

In addition to the undergraduate and graduate programs available on the campus during the regular sessions, the following special programs, designed to meet the needs of special groups of students, are also offered: The Imperial Valley Campus Program, the Program for Classes Meeting at 4 O'Clock or Later, Summer Sessions, Extension Courses Program, Honors Program, International Programs, and Veterans' Education.

IMPERIAL VALLEY CAMPUS

LOCATION AND FUNCTIONS

The Imperial Valley Campus is one of several divisions of San Diego State College. Functioning as a separate campus, its primary function is to provide collegiate instruction for the desert area of Southeastern California. It is located at Seventh Street and Heber Avenue in Calexico, California, adjacent to Rockwood Plaza, a park located near the center of the city. The buildings housing this campus are of early Spanish style architecture complimenting the geographic location adjacent to Mexicali, Baja California, Mexico, a city of approximately 400,000 population. The program at this campus is an integral part of San Diego State College and is under the general jurisdiction of the Vice Preisdent for Academic Affairs. The curriculum includes the recommended upper division and postgraduate program of courses leading to a bachelor's degree and the Standard Teaching Credential with specializations in elementary, secondary, and special education. Admission of students, counseling, and testing are provided by the Director and a full-time college instructional staff. In addition to the regular program, the campus also assists in the administration of extension courses for the Southeastern California area. The campus operates on the regular basis of fall and spring semesters, with occasional summer sessions conducted in fully refrigerated air-conditioned buildings.

PROGRAM

The program at the Imperial Valley Campus is restricted to upper division and postgraduate courses applicable to a bachelor's degree and the standard teaching credential. In general, the programs are similar to those described in this catalog for elementary and secondary teaching; however, not all majors and minors available on the San Diego Campus are offered at Imperial Valley Campus.

The Imperial Valley Campus is designed to serve the needs of the following: (1) junior college graduates, (2) transfer students who have satisfactorily completed two or more years of college work with an accredited college, (3) persons now teaching, but who want to complete requirements for a bachelor's degree and/or a teaching credential, (4) inservice teachers holding either a provisional credential or a partial fulfillment of requirements credential, and (5) college graduates who wish to complete the requirements for a regular teaching credential.

For those transfer students needing certain lower division college work in connection with their work at this campus, there is available in the area the Imperial Valley College, College of the Desert, Mt. San Jacinto College, Palo Verde College, and Arizona Western College. These are public junior colleges offering the first two years (60 units) of college work.

INFORMATION

Information on admission, registration, programs, and classes may be obtained by writing the Director, Imperial Valley Campus of San Diego State College, 720 Heber Avenue, Calexico, California 92231. Telephone, Area Code 714, 357-3721 or 352-5872.

PHYSICAL FACILITIES: OFFICES, CLASSROOMS, STUDENT UNION, BOOKSTORE

The Imperial Valley Campus is comprised of a cluster of three large buildings set in a six acre landscaped area in the center of the City of Calexico. The buildings are of early traditional Spanish architecture, with thick plastered walls and red tiled roofs.

The administration offices are all located in the central building. Classrooms are located in all buildings on the campus. All are large, comfortable, and equipped with refrigerated and/or heated air conditioning to fit the season. All resident faculty members maintain offices on campus.

Facilities are provided for student use in the student union consisting of two large rooms entirely separated from the office and classroom areas. The rooms which are furnished with television, sofas, lounge chairs, small tables, and easily movable chairs, can be used for conferences and meetings. Snack facilities are also available to students. The Associate Student Body Offices are located in the central building, room C-104.

Books and other materials may be purchased at the start of each semester at the Campus Bookstore. In addition to class textbooks, paperback books on a variety of topics are available to students.

FACULTY

The full-time faculty and many of the part-time faculty are regular members of the San Diego State instructional staff. There are full-time resident faculty members in the areas of English, geography, history, mathematics, political science, psychology, sociology, Spanish, speech arts, elementary education, secondary education, and special education. More than seventy-five per cent of the full-time faculty possess the doctoral degree. Part-time faculty, selected from outstanding educators of Imperial Valley, augment the instructional programs of the Imperial Valley Campus.

LIBRARY

The Imperial Valley Campus library is housed in the south wing of the three building complex. It contains over 20,000 books, 2,500 pamphlets, and 200 periodicals. Stacks are separated from the study-reference area. Additional loan privileges are available to students and faculty through the library at the San Diego Campus and the Southeastern California area public and school district libraries. Books and reference materials are also available from the two Mexican collegiate institutions located in Mexicali, Baja California, Mexico.

AUDIO-VISUAL EQUIPMENT

A basic collection of audio-visual equipment is available for classroom use. Films and other instruction materials are available to the staff and students through the Audio-Visual Departments of the San Diego Campus and of the Imperial County Education Center. Films are also rented from outside sources as needed.

FINANCIAL ASSISTANCE

Loans and scholarships available at San Diego State and Imperial Valley Campus are described elsewhere in this catalog. Consideration is usually given to students on the basis of scholastic attainment, financial need, character, and promise. National Defense Education Act Loans and United Student Aid Fund Loans are also available, as well as veteran benefits.

PLACEMENT AND EMPLOYMENT

The college provides a centralized placement service in cooperation with the School of Education. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with schools for teacher placement.

Special Programs and Services

ADMISSION TESTS

The various tests required for the programs offered at the Imperial Valley Campus are given at the Calexico Campus. For further information and dates of administration contact the Director's office.

ACCREDITATION

The Imperial Valley Campus, being a division of San Diego State College, is fully accredited. Consult this catalog for full listing of the accrediting associations.

CLASSES MEETING AT FOUR O'CLOCK OR LATER

In order to meet the needs of adults in the community for work on the college level, some courses are scheduled to begin at four o'clock or later. These include both undergraduate and graduate courses and carry full college credit. Classes offered at this time are part of the regular college offerings and are taught by faculty of the college.

Students enrolling in these classes must be fully matriculated students who have met all admission requirements of the college, including the filing of an official application for admission, the filing of complete official transcripts from other schools and colleges, and in the case of undergraduates, the completion of required tests for admission. See the section of this catalog on Admissions for deadline dates.

SUMMER SESSIONS PROGRAM

San Diego State conducts an intersession and two summer sessions which offer credit applicable to graduation and residence requirements. During the Intersession of one or two weeks, from one to two units of credit may be earned; during the six-week Term I Summer Session, six units of academic credit may be earned; and during the three-week Term II Summer Session, three units may be earned. The tuition fee for summer session work is based upon cost per semester unit. (Refer to the section of this catalog on Schedule of Fees for information on fees.) Information concerning course offerings, special workshops, and requirements for admission may be obtained by communicating with the Summer Sessions Office. A *Summer Sessions Bulletin* is available during the month of April and will be mailed free of charge upon request.

EXTENSION COURSES PROGRAM

In order to serve more adequately the educational needs of the community, the college cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the enrollment is sufficiently large to finance the instruction. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various locations within San Diego, Riverside, and Imperial Counties. A minimum of 18 to 20 students is usually required in order to maintain a class. The usual class carries three units of credit and meets once a week, either in the late afternoon or evening. These courses are listed in a special *Bulletin of Extension Courses* published each semester. Refer to the section of this catalog on Schedule of Fees for information on fees.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number. For information on organization of classes, current offerings, and eligibility for registration, communicate with the Extended Services Office.

HONORS PROGRAM

The Honors Program at San Diego State provides opportunities for superior students to use and develop their talents in a variety of ways, both all-college and departmental.

Those who have taken the Advanced Placement Examinations should refer to the section of the catalog so titled.

Prior to entrance, freshmen who have superior high school records may, on the basis of their college aptitude test scores, be invited to participate in a special advising program. Here attention is given to individual needs and interests. Later, as sophomores, such students are eligible for the Honors Colloquium (Humanities 66).

Some departments offer Honors sections of selected courses. Normally, admission is by invitation, but any student interested should consult the *Class Schedule* for the name of the faculty member in charge and consult with him to establish eligibility. Currently honors sections are offered in English 1A-1B; Mathematics 50, 51, 52; Physics 4A-4B-4C; Political Science 1, 2; and Psychology 1. Chemistry 10A-10B is an honors course.

Upon completion of the sophomore year a student who has maintained a superior scholastic record may be eligible for admission to the upper division Honors Program of his major department. Specific requirements and details of these programs vary with the different departments. To apply, a student should consult his major adviser or the chairman of his major department.

The purpose of the San Diego State Honors Program is, within practicable limits, to meet the individual needs of the most capable students. Credit by examination, release from regular attendance, modification of curriculum requirements in the major and minor, and individual study are other opportunities available with the consent of the major adviser or other authorities.

INTERNATIONAL PROGRAMS

The California State Colleges offer academic year programs of study at a number of distinguished universities abroad. For 1968–69 the cooperating universities are: University of Aix-Marseille, France; Free University of Berlin and University of Heidelberg, Germany; University of Florence, Italy; Waseda University, Tokyo, Japan; University of Granada and University of Madrid, Spain; University of Stockholm and University of Uppsala, Sweden; National University, Taiwan. Academic work successfully completed at the cooperating universities abroad may be applied toward the degree requirements of the College in accordance with college regulations.

A selection among applicants from all California State Colleges is made on the basis of academic, linguistic and personal qualifications. The criteria are:

a) Upper division or graduate standing by the beginning of the academic year abroad;
b) Academic achievement;
c) Proficiency in the language of instruction;
d) Faculty recommendations.

Cost to the student includes round trip transportation from San Francisco to the host university, room and board for the academic year, and medical insurance. In 1968–69 these costs are: France, Germany, Spain, $2,070; Italy, Japan, $2,170; Sweden, $2,370; Taiwan, $1,770. Payments may be scheduled throughout the year.

Programs in Italy, Japan, Sweden, and Taiwan do not require previous linguistic preparation; applicants for all other programs must demonstrate adequate facility in the language of instruction at the host university.

Application for the 1969–70 academic year should be made early in the fall semester, 1968. Detailed information may be obtained at the office of the Dean of Liberal Arts and Sciences, San Diego State College, or by writing to the Office of International Programs, The California State Colleges, 1600 Holloway Avenue, San Francisco, California 94132.

VETERANS' EDUCATION

The college has been approved by various accrediting agencies to offer courses for veterans leading to the baccalaureate in numerous fields and to the master's degree and various teaching credentials. A veterans' office is maintained to facilitate registration, aid in the establishment of benefits, and serve as an information center.

SERVICES

RESEARCH BUREAUS

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School of Business Administration. Operationally, it is a part of the School of Business Administration, with a director and an editor. Fiscal matters are coordinated through the San Diego State College Foundation. The principal objectives of the bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) compile local and regional data; (5) publish the results of bureau research investigations and aid the faculty in publication of their research. Graduate students are encouraged to make use of bureau facilities. The Bureau is a member of the Associated University Bureaus of Business and Economic Research.

BUREAU OF EDUCATIONAL RESEARCH

The Bureau of Educational Research operates within the School of Education. The objective of the bureau is to improve the quality of education through research by (1) assisting with research activities of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and statistical techniques, and (4) engaging in the dissemination of educational research information.

CENTER FOR THE STUDY OF COUNSELOR EDUCATION

The Center for the Study of Counselor Education is an interdisciplinary task force under the administrative jurisdiction of the Dean of Education; fiscal matters are coordinated through the San Diego State College Foundation. The Center is designed to draw together faculty members from relevant disciplines such as anthropology, economics, education, psychology, social welfare, social work, sociology, and the college counseling center for such purposes as (1) securing and administering grants and other support for research and development in counselor education and guidance and (2) conducting programs or rendering services related to counselor education and guidance through contractual agreements with public or private agencies or organizations.

CENTER FOR SURVEY RESEARCH

The Center for Survey Research has been established to encourage nonprofit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations, and to do field work on a local, state, or national basis. Faculty members who wish to submit applications for off-campus support in survey research in the name of the Center may do so, upon approval of the project by the Center's Advisory Committee. The Center is administered by a Director.

COMPUTER CENTER

The College Computer Center is an adjunct to the instructional program of the College, similar to the Library. Its purpose is to achieve an integration with the various curricula so that ultimately the student or faculty member who has need for a computer will utilize the facility as readily as one now draws books from the Library. The physical equipment, which is leased, consists of a small digital computer with disk auxiliary storage and an on-line digital incremental plotter which, under computer control, can produce plots up to 29 inches wide by 100 feet long. Additional facilities include all necessary peripheral equipment to permit computer operation in the fields of scientific computation and commercial data processing. Elementary and intermediate programming courses are offered by the Department of Mathematics, and courses relating to the specialized applications of digital computers are offered in the areas of mathematics, business administration and engineering.

ECONOMICS RESEARCH CENTER

The Economics Research Center collects research materials, and publishes occasional monographs. The research facilities are available to advanced students for their research reports and to faculty members in economics, and in other fields, for the purpose of aiding research projects. The regular faculty seminars of the Economics Department, meetings of the local chapter of Omicron Delta Epsilon, and special economics conferences are held in this Center.

INSTITUTE OF LABOR ECONOMICS

The Institute of Labor Economics is an activity of the Economics Department with its administration under a director. The Institute, located with the Economics Research Center in SS-340, provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College, organized to conduct research into community and governmental problems. It also sponsors institutes and conferences related to community and governmental activities. It is staffed by members of the faculty of the college. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes, and research centers of the college.

SOCIAL RESEARCH CENTER

The Social Research Center is a facility of the Department of Sociology. It provides physical equipment and space for the planning and processing of sociological research in such areas of investigation as urban growth and development, demographic factors, and social surveys. Current plans include expansion of the center to include laboratories for experimental studies of social organization. The center is administered for the Department of Sociology by a director and an assistant director, whose duties include consulting assistance in the designing and execution of studies and in the preparation of proposals to funding agencies.

SAN DIEGO STATE COLLEGE PRESS

The San Diego State College Press operates under supervision of a publications board composed of representatives from each of the 10 college divisions. Financial assistance was initially obtained from the local chapters of the California State Employees' Association and the Association of California State College Professors.

The press publishes important faculty-sponsored research reports, community studies, documents, and literary articles.

AUDIOLOGY DIAGNOSTIC CENTER

The Audiology Diagnostic Center is a facility of the Speech Arts Department with its administration under a director. The center is located in the lower floor of the Education Building, adjacent to Health Services. The principal objectives of the center are: 1) to provide complete diagnostic information regarding the hearing loss for faculty, students, and staff free of charge; 2) to provide the same service to the community for a minimal fee administered through the College Foundation; 3) to provide hearing assessment of all freshmen and transfer students as part of their health examination; and, 4) to foster research in the area of hearing function and pathology. This center operates throughout the school year and in Summer Session I.

Special Programs and Services

SPEECH AND HEARING CLINIC

A speech and hearing clinic in which college students are trained in the application of speech and hearing pathology techniques, speech, lipreading and auditory training and language development for the hard of hearing and deaf, is held throughout the academic school year and in Summer Session I. The clinic admits those with speech and hearing problems, ages three to adult. Because of limitations in staff, not all who apply can be admitted. A minimal fee is charged for diagnostic evaluation and/or therapy.

CLINICAL TRAINING CENTER

The Clinical Training Center prepares college students to identify and diagnose children's and young adults' physiological and psychological difficulties, to teach and give remediation, and to test and counsel. Students from the departments of Education, Psychology and Speech Arts receive a variety of carefully planned experiences, including an opportunity to work with children and youth under supervision on a one to one ratio or in very small groups. In addition, they take part in frequent staff meetings which utilize the interdisciplinary approach toward solution of children's problems. Meetings with parents of the children with whom they work is a regular function of the training program.

While the primary purpose of the Center is to train teachers and clinicians, a community service is offered to those who have problems with school achievement, speech, hearing, educational and vocational planning, and school adjustment. Referrals are ordinarily made by schools, other agencies, or individuals. Parents, for example, may make a referral either directly to the Center or through their child's school. In general, preference would be given to the child who might profit best by specialized help and who meets the needs of training college students. There are specific criteria of selection of children for each strand of the total program.

AUDIO-VISUAL CENTER

The Center provides: (1) student operators to handle all types of A-V equipment for the instructional staff; (2) a comprehensive library of motion pictures, filmstrips, and tape recordings; (3) facilities for renting and borrowing instructional materials from most outside agencies; (4) a pool of audio-visual equipment for use by individual instructors. In addition, complete photographic, graphic and audio recording services are available for all instructional areas on campus. A professional staff of media specialists is available for consultation regarding purchases, production, and appropriate instructional utilization.

STUDENT SERVICES

ACTIVITIES, AND HOUSING
LOANS AND SCHOLARSHIPS

PERSONNEL SERVICES CENTER

The Personnel Services Center includes the Student Counseling Office, Test Office, Foreign Student Office, and the Veterans Office. The function of the Center is to help students gain the greatest benefit from their college experience through counseling, testing, and related personnel services. A staff of counselors is available to students who wish help in the solution of problems of a personal, social, academic, or occupational nature.

The program of student advising is coordinated through the Center. Students wishing to set up special majors do so in the Counseling Office. Official change of major forms are available at the Registrar's office.

HEALTH SERVICE

As a part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These services are administered under the direction of a medical doctor. A full-time staff is available to the students when school is in regular session for consultation, treatment of minor physical difficulties, emergencies, and counsel as to additional proper procedures. Full-time nurses are also on duty when school is in regular session. A student must be currently enrolled for seven or more units of credit to be eligible for other than emergency treatment.

As part of the regular admission procedure a health statement is required of each student. A form is furnished prior to registration for the purpose of recording the results of a physical examination performed by the student's private physician. These admission examinations are not available at the college. Careful attention is given to students undergoing private remedial treatment and those for whom a modified study load or limited participation in physical activities seems advisable.

Physical examinations are required before students are authorized to participate in the organized programs of intramural or intercollegiate athletics. If the original physical examination submitted by the private physician is acceptable for these activities, the examination need not be repeated provided there have been no serious illnesses or accidents subsequently.

A student health insurance program, sponsored by the Associated Students, available to those carrying seven or more units is currently in effect. This insurance, which gives coverage for hospitalization and specified medical and surgical services for the period for which issued, may be purchased at the time of registration at Aztec Shops. It may be purchased on a semester or a yearly basis. In the latter event coverage includes the summer months. Refunds on a prorated basis may be made to those students who graduate, or to those individuals who drop out of school during the period covered by the insurance.

PLACEMENT CENTER

The college provides a centralized placement service in cooperation with the various departments of the college. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Liaison is maintained with the Personnel Services Center on matters relating to senior vocational counseling. Staff members maintain constant contact with schools, businesses, and industries. Seniors and graduate students should contact the Placement Center early in the year in which they expect to receive degrees or credentials.

Student Services Activities and Housing

Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

STATE VOCATIONAL REHABILITATION

Assistance to certain students having physical handicaps or limitations may be available through the Bureau of Vocational Rehabilitation, California State Department of Education. Services available include diagnosis, counseling and guidance, psychological testing, provision of fees, books, and supplies, subsistence and transportation allowances. Restoration services to reduce or remove disabilities may also be provided and can include medical and psychiatric treatment, artificial appliances, hospitalization and allied therapies. Applicants must be residents of California for one year and have a significant disability which interferes with employment. Information is obtainable at the agency offices, New State Office Building, 1350 Front Street, Room 4053, San Diego.

IMPROVEMENT OF WRITING COMPETENCY

Standard English, free from flagrant errors in grammar and spelling, is required on written assignments throughout the college. To help students attain a reasonable proficiency, the English Department offers several courses in composition, beginning with the freshman year. Additional assistance is provided by the Reading-Writing Improvement Center. Passing of the Writing Competency test or satisfactory completion of designated courses or remedial programs is a requirement for graduation. This program is under the supervision of the College Committee on English.

READING AND WRITING LABORATORIES

A Reading Laboratory and a Writing Laboratory are maintained by the English Department. These laboratories offer a semitutorial service to those wishing to improve reading or writing ability, or secure individual help with study problems or writing projects, either remedial or advanced. The service is open to all students at any level of college work. To avail himself of this service, the student may enroll in English R or English W as he does in any course. He may also report for special help without registration. The laboratory course carries no college credit.

STUDENT ACTIVITIES PROGRAM

A rich field of extracurricular activities is available to San Diego State students. The *Student Handbook*, available at the time of registration, gives information concerning the nature and scope of these opportunities. The Office of the Dean of Activities is open to students desiring advice and assistance in planning appropriate participation. A multitude of opportunities are offered through musical and dramatic performing groups, programs of intercollegiate athletics, newspaper, magazine, radio, television, and theater productions. Among the approximately 171 student organizations offering membership are national service, honorary and professional fraternities, recreational, religious, special interest and departmental organizations, national social fraternities, and national social sororities.

There are 12 national sororities at San Diego State. Housing accommodations for approximately 300 women are available in sorority houses. Only one formal rush period is held during an academic year. Registration for the 1968 Formal Fall Rush Program will extend through August 9, 1968. Rush Week will be held September 6, 1968 through September 14, 1968. In order to participate in this week, a student must have received formal admission to the college by August 9, 1968. During the Formal Fall Rush Period, housing is available to each rushee in a college residence hall. Information and materials may be obtained by writing the College Panhellenic Office, San Diego State College, San Diego, California 92115.

There are 14 national fraternities at San Diego State. Rush periods are held after classes begin. Registration for the 1968 Formal Fall Rush Program will extend through September 27, 1968. During the school year, accommodations for approximately 230 men are available in fraternity houses. Information and materials may be obtained by writing the Interfraternity Council, San Diego State College, San Diego, California 92115.

AZTEC CENTER

Developing from an initiative started in the 1930's, construction on the new campus student center was completed in 1968. Funds for construction accumulated slowly at first. Donations were received through the late 1930's and 1940's. The shot in the arm came in 1956 when the A.S. Council began setting a portion of the activities fee aside into the building fund. In 1963, the students voted to assess themselves a mandatory fee for the further development of the project. Striving for excellence, surveys of students needs and desires were taken, tours of many other campus centers were conducted, and consultants used to guarantee true quality.

Then in 1965, the financial go-ahead was given by the U.S. Department of Housing and Urban Development on a 40-year loan of $2,900,000. The Student Union fee will be used to retire this indebtedness—no public tax money is involved. The furnishings and equipment will be paid for with student funds and contributions from Aztec Shops, Ltd.

The name AZTEC CENTER was selected by the A.S. Council (following a study of Aztec tradition and student suggestions) to symbolize the unifying nature of the facility. The Center is a focal point of student activities and recreation, as well as a common meeting ground for students, faculty, staff, alumni, and guests.

The 108,000 square foot structure houses a portion of the activities program and sponsors several other supplemental programs. The facilities include: Several lounges, conference rooms, bowling lanes, billiards, table tennis, campus information center, U.S. Post Office, ticket offices, lost and found, barbershop, Alumni Office, student government center, a snack bar and restaurant, and a large hall for dances, lectures, assemblies, movies, etc.

ALUMNI ASSOCIATION

The Alumni Association has as its major purpose the continuation of interest by students, faculty, and the community in the college. Cooperating with student and faculty committees, the association participates in Homecoming and Founders Week as well as other campus events. The official publications are the monthly *Alumni News* and the biannual *El Campanario* magazine which have as their purpose the distribution of news about the changing college scene to its members. Information regarding alumni affairs may be secured from the alumni office in the Aztec Center. Membership in the Alumni Association is open to former students of the college who were in regular attendance for one or more semesters. Membership is also open to past or present members of the faculty.

RESIDENCE HALLS

Accommodations for 1,680 single resident students are available in six residence halls on campus.

Each of the buildings is fire-proof and air-conditioned throughout for the comfort of the occupants. Five halls (two for men and three for women) accommodate 209 students each, with sleeping and study facilities on a 2 student per room basis. Another residence, which is co-ed, accommodates 624 students with approximately 150 spaces for men. Adequate provision for study hours will be made, as well as opportunity for participation in campus activities. Student government in each residence, working through the Associated Students of San Diego State College, sets standards for basic behavior in these residence halls. The personnel student staff consists of one Head Resident and five Assistants in each of the smaller residence halls, with two Head Residents and appropriate staff in the larger hall.

For 1968–69, the total charge per semester for room, health service benefits, linens and 19 meals per week served in the college cafeteria, will be approximately $475 to $550, depending on accommodations. For additional information, contact the Director of Housing, San Diego State College, San Diego, California 92115.

Official reservation for housing in the residence halls is made only upon payment of $78 deposit to the college Cashier's office. A $20 refundable security deposit is required and is included in the $78 deposit. If you have not been notified by the Dean of Admissions by August 15th, you should contact that office to be sure that you will be accepted by the college. Those students who have not been accepted by September 1 (or February 1—Spring semester) will have their firm housing reservations cancelled and their monies refunded. Should you receive a housing contract, please understand this DOES NOT mean that you have been accepted by the college.

As an additional service for married students and others, a bulletin board of available apartments or rooms in this vicinity is maintained. Should you be on campus, feel free to come in and look through these situations.

During the summer school sessions, rooms are available in the residence halls on a priority of date of receipt of check. Meals at this time can be purchased on a casual basis from the college cafeteria by the individual as he so desires. A Meal Ticket Program will be available during Summer Session I. Rooms are available on a single and double occupancy basis for the first six weeks session, as well as Session II, which is 3 weeks. Weekly rates may be available to students under special circumstances. Space will be available for married students without children at the same rate. A $20 refundable security deposit should accompany the rate figures listed.

OFF-CAMPUS HOUSING

San Diego State is located in a residential district of apartment houses and small homes. The campus is about 10 miles east of the downtown central business section of San Diego and five or six miles west of the neighboring cities of La Mesa and El Cajon. Information on housing facilities, as well as on residence halls, may be obtained from the Director of Housing, San Diego State College.

Adjacent to the campus is located a nine-story privately-operated college-approved co-educational residence hall where room and board is attainable for approximately 576 students. Information concerning accommodations can be secured by writing to El Conquistador Residence Hall, 5505 Montezuma Road, San Diego, California, 92115.

EATING FACILITIES

During the periods when the college is in session, two cafeterias, two snack bars and a restaurant are operated on the campus serving breakfast, lunch and dinner at modest cost per meal. In addition, restaurants are available within one mile of the campus.

TRANSPORTATION

Bus line transportation to the college, connecting with all areas of the metropolitan area, is available daily, except Sundays and holidays. Route S operates north-south on College Avenue, between the campus and the College Grove Shopping Center at Ryan Road. Transfer points for connecting east-west bus lines are at El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

PARKING

On-campus parking areas are provided for students, faculty and staff. Visitor information booths are located at the entrance to the campus on College Avenue and on Campanile Drive. Please refer to the map of the campus in this catalog for information on location of parking areas and to the section of the catalog on Schedule of Fees for information on parking fees. The traffic headquarters office is located at the entrance to the Administration Building.

COST OF LIVING

Each student should plan his budget based upon individual needs. The wide range of financial resources of students in a college with an enrollment of 20,000 makes it difficult to give specific information on the cost of attending college. At San Diego State it is possible to live simply and participate moderately in college life and activities on a modest budget. A table of estimated costs is given below as a guide to students in planning the college budget.

ESTIMATED EXPENSES FOR THE ACADEMIC YEAR

Typical Costs for Living on Campus

Materials, service, student activity, and student union fee (Nonresident tuition for out-of-state students of $720 or Foreign Student tuition of $255 is in addition to the above fee)	$120.00
Books and supplies	150.00
Room, board, health services, parking	1,170.00
Personal	360.00
	$1,800.00

Typical Cost for Commuting Students

Materials, service, student activity, and student union fee	$120.00
Books and supplies	150.00
Lunches	170.00
Transportation and parking	226.00
Board and incidental allowances	400.00
Personal	334.00
	$1,400.00

Typical expenses for married students without children average $3,800 for a 12 month period.

FINANCIAL AID

San Diego State College makes every effort to see that students who wish to attend are not prevented from doing so because of inadequate financial resources. To this end, financial aid in the form of loans, grants, and opportunity for part-time employment on or off the campus is made available to qualified applicants. In the majority of cases, a student will be offered a package financial aid plan which may include one or more of the following: grant, part-time employment, loan. The programs explained below are administered by the Financial Aid Office, Administration Building, Room 222.

SAN DIEGO STATE COLLEGE FOUNDATION LOAN PROGRAM

Through the generosity of a number of individuals and groups, funds have been established to assist students with both emergency and deferred loans. Completion of at least one semester of full-time attendance at San Diego State is required before the student is eligible. The amount that may be borrowed, based on college related need, may not exceed $500. Repayment is generally made during the semester; however, senior and graduate students in their last year of college may select deferred repayment plans. Most loans under this program are free of interest. Applications are available throughout the academic year.

NATIONAL DEFENSE STUDENT LOAN PROGRAM

National Defense Student Loans under the National Defense Education Act of 1958, are available to students who can meet the specific qualifications. All students, both entering and continuing, may apply for these loans. The amount that may be borrowed, based on college-related need, may not exceed $1,000 per year for an undergraduate, nor $2,500 per year for a graduate student. Repayment begins nine months after the student ceases to carry at least one-half the normal full-time academic work load and ends ten years and nine months after such date. The interest rate is three percent simple interest per year. This loan program provides a borrower with a partial cancellation of ten or fifteen percent of their loan, plus interest, for service as a full-time teacher in a public or other non-profit elementary or secondary school or institution of higher education.

NURSING STUDENT LOAN PROGRAM

San Diego State College participates in the Nursing Student Loan Program under the Nursing Training Act of 1964. All students, both entering and continuing, may apply for these loans if they plan to enroll in a full-time course leading to the Bachelor of Science degree in nursing. The amount that may be borrowed, based upon college-related need, may not exceed $1,000 per year. Repayment begins one year after the student leaves college and may extend over a ten year period. The interest rate is based upon prevailing Federal interest rate at the time the loan is made, and ranges between three per cent and five percent simple interest.

UNITED STUDENT AID FUND PROGRAM

United Student Aid Fund Loans in conjunction with the student's home town bank, are available to those students meeting specific qualifications. Students who have completed thirty credit hours or more are eligible to apply. The amount that may be borrowed, based upon college-related need, may not exceed $1,000 per year for undergraduates nor $1,500 per year for graduate students. Repayment begins nine months from the time the borrower graduates and may extend between thirty-six and fifty-four months. Interest is three to six per cent simple interest, beginning at the time the loan is granted. Interest rate is dependent upon family adjusted income.

EDUCATIONAL OPPORTUNITY GRANT

San Diego State College has funds which provide Opportunity Grants of between $200 and $800 to students who show academic promise, are of exceptional financial need, and would not, but for such a grant, be financially able to pursue higher education. Opportunity Grants are available to both entering freshmen and transfer students, as well as continuing students. These grants may be renewed each year for the number of years necessary for the student to complete the normal four year undergraduate degree program.

COLLEGE WORK-STUDY PROGRAM

San Diego State College participates in the College Work-Study Program under the Economic Opportunity Act of 1964 as amended. Students may qualify for financial aid in the form of part-time employment if they meet the specific qualifications of this program. All students, entering and continuing, will be eligible to apply. Where feasible, college work-study grants will be combined with loans, grants or other financial aid. Students may be employed in positions for up to fifteen hours per week when classes are in session and forty hours per week during vacation periods. The rate of pay for such employment, based upon individual skills, is from $1.40 to $2.75 per hour.

STATE GUARANTEED LOAN PROGRAM

This Federal loan is a part of the Higher Education Act of 1965 and is assigned to the State Scholarship and Loan Commission for administration. These long-term low-interest loans will be made by banks and credit unions and provide deferred payment and interest until graduation or the termination of higher education. Applications are available in the Financial Aids Office, Administration Building, Room 222.

MINIMUM REQUIREMENTS FOR APPLICATIONS

San Diego State College participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. As a participant, the institution subscribes to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists the college in determining the student's need for financial assistance. All students under twenty-five years of age, regardless of marital status, who request financial assistance in excess of $200 per year are required to submit a copy of the Parents' Confidential Statement form to CSS, designating San Diego State College as one of the recipients. Necessary forms, in addition to the financial aid application and brochure, may be secured in the Financial Aid Office.

APPLYING FOR AID

Students may request assistance for all programs explained above on financial aid forms provided by the college. All applicants twenty-five years of age or under, regardless of marital status, must also complete a Parents' Confidential Statement. Application forms are available between February 12 and June 15, 1968, for the 1968–69 academic year. To the extent that funds are still available, students may apply for aid from any program after October 1, 1968.

SCHOLARSHIPS

APPLICATIONS

Most donors of scholarships at San Diego State have chosen to grant moneys to students who have academically proven themselves for at least one semester at San Diego State College; therefore, the college can award only a few music, athletic, and general scholarships to incoming students.

Scholarships ranging from $50 to $500 are granted to outstanding students by the College Scholarships Committee. Applications for scholarships may be secured in AD-226 of the Administration Building. Applications should be filed in March for the school year. California State Scholarship applications are available during October and November.

Many of the scholarships available in the college are for students in specific programs; many are awarded to students directly by donors, and administered by the college. Each semester the committee announces, in the campus paper and to all faculty and students, a list of available awards and the procedures to be followed in applying for them. All students in the college are encouraged to be alert for these announcements, and to consult with their advisers and departments about scholarships in their fields of study.

A scholarships brochure will be mailed if request is made to the Activities and Scholarships Office, San Diego State College, San Diego, California, 92115.

SCHOLARSHIPS AWARDED IN HIGH SCHOOLS

Ordinarily, freshmen who enter San Diego State with a scholarship have received the award through their high school scholarships committee. For example, the DeWitt Bisbee Williams Memorial offers a $100 scholarship to each high school in San Diego City and County for a member of the California Scholarship Federation. The scholarship committee of each high school selects its scholarship recipient from students who have been CSF members for at least two semesters and have qualifications for admission to San Diego State.

FOREIGN STUDENT APPLICATIONS

Foreign students, once registered, may participate in the competition for scholarships at San Diego State. From time to time there are a few small scholarships available that are designated for foreign students, but most scholarships are open to applications from any student.

SCHOLARSHIPS FOR GRADUATE STUDENTS

A few small grants for graduate students are awarded through departmental recommendations of students who have attended San Diego State. Information about departmental assistantships may be obtained by writing to the department in which the applicant is interested.

A repository of information concerning graduate scholarships and fellowships awarded by other colleges and universities will be found in the education section of the library.

Special assistance is available in applying for certain Graduate Fellowships. Deadlines range from September 20 through October 25. Contact Dr. Kurt Friedrich, Professor of Education, for Fullbright Fellowship information, Dr. Will Kidwell, Placement Director, for Danforth and Kent Fellowships, and Dean Margery Warmer, Dean of Activities, for the Woodrow Wilson and Rhodes Fellowships.

COLLEGE SCHOLARSHIPS COMMITTEE

In addition to more than 600 scholarships granted to students directly by organizations and individuals, the following scholarships are awarded through the College Scholarships Committee.

Alpha Epsilon-Brenda Beitner
Altrusa Club
American Society Civil Engineers
American Society for Metals
American Yugoslav Woman's Club
Anonymous "MB"
Aztec Club Athletic Scholarships
Baranofsky Memorial
Beta Alpha Psi
Budd Boyle Memorial Scholarship
California Congress P.T.A.
Chi Omega Sorority
Cooper, Daniel William
Coronado Woman's Club
Country Friends
Del Cerro Women's Club
Dow Chemical Company
Dresser, Elizabeth
Ellis, George William Memorial
Executive Secretaries, Inc.
Finder, George A. Memorial
  Scholarship
Fireman's Assoc., Ladies Auxiliary
Fleischner, Anna S.
General Dynamics-Astronautics
Golden, Kenneth
Haskins & Sells Foundation
KAHN Health & Physical Education
Kappa Beta Nu Sorority
Kappa Delta Pi
Kent Manchester Memorial Scholarship
KOGO-TV
Lioness Club of East San Diego
Lions Club-College Center
Linkletter, Art
Lodge, Catherine Yuhan
Marcy, May Finney
Miriam Payne Memorial
Neely Enterprises—Hewlitt Packard
Pacific Beach Jr. Woman's Club
Perry, Fay Van Ness
Phi Epsilon Phi
Pi Lambda Theta
Realty Board of San Diego
San Diego Human Factors
San Diego Women's Club–Home and
  Garden, Valerian, and Study Sections
Senn, Percie Bell
Shields, Robert Foundation
Sigma Alpha–Gamma Upsilon Chapter
Sigma Alpha Iota Alumnae
Sigma Phi Epsilon–Bruce Sandell
Silvergate Lions Club
Silverman, Anna and David
Solar Recreation
Stott, Dorothy C.
Stott, Kenneth W.
Thearle Music Company
Trott, Wilmia Tyler
Union-Tribune Charities
Western Electronics
Whitney, Guilford H., Foundation
Williams, DeWitt Bisbee

REGULATIONS

ADMISSION
REGISTRATION
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GRADUATION REQUIREMENTS

ADMISSION

APPLICATION FOR ADMISSION

FILING OF APPLICATIONS

Deadline for Filing Application. An application for admission to the college may be filed during the semester preceding the one in which the applicant expects to enroll. The last dates for filing applications are as follows:

For fall semester: July 15.

For spring semester: December 15.

Required Official Forms. The following official forms must be submitted to the Admissions Office:

(1) Application for admission or readmission, accompanied by a $10 application fee. Make check or money order payable to San Diego State College.

(Fee may be waived for readmission application if student was regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, unless such student was enrolled at another institution in a regular session subsequent to such previous semester.)

(2) Health history record

(3) Residency statement

These forms may be obtained from the Admissions Office. Letters from applicants signifying intention to enroll will not be considered as applications for admission. The official forms must be filed.

FILING OF RECORDS

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

(1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).

(2) Transcripts from **EACH** college attended (including extension, correspondence, summer session, or evening courses).

(3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received by the college become the property of the college and *will not be released nor will copies be made.*

COMPLETION OF REQUIRED TESTS

Admissions Tests.

(1) *College Aptitude Test.* The American College Test (ACT) is required for matriculation of entering freshmen and transfer students with less than 60 units. Applicants should consult the high school counselor for dates and places where tests are given.

Transfer students with more than 60 units are required to take a college aptitude test administered at this college. A test reservation card is filed with the application for admission. Refer to the calendar in this catalog for dates of the test.

(2) *Writing Competency Test.* This test must be taken before registration by all undergraduate students transferring to this college with 45 units or more of advanced standing. Passing this test or satisfactory completion of designated courses or remedial programs is a graduation requirement for all students. Since this test is scheduled to be given at the same time as the college aptitude test, a separate reservation for the test need not be made.

(3) *English Test for Foreign Students.* For admission purposes, all entering foreign students whose native language is not English must take this test. The test will be scheduled by the counselor for foreign students. This test does not take the place of the writing competency test required for graduation.

Teacher Education Tests. These tests are required of all candidates for teaching credentials. Refer to Admission to Teacher Education in the section of this catalog on Professional Curricula in Education, and to the calendar for additional information.

(1) *Fundamentals Test.* This test is required of all candidates for the general elementary and kindergarten-primary credentials before admission to teacher education. May be taken before registration by students transferring to this college with 15 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Elementary Education, Education Building.

(2) *Comprehensive College Test.* This test is required of all candidates for any of the secondary school credentials before admission to teacher education. May be taken before registration by students transferring to this college with 60 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Test Office, Administration Building one month prior to test date. Fee required.

(3) *Mathematics Competency Test.* A mathematics competency test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is the same test as the one given to clear the graduation requirement for competency in mathematics. Graduate students must make a reservation for this test at the Test Office in the Administration Building.

Qualification Tests.

Mathematics Placement Examinations. Required of students before enrollment in any of the following courses: Mathematics 3, 4, 12, 20, 21, 22, 40, 50; and Economics 2. These examinations may be taken before registration. Reservations for the examinations are not required. Refer to the calendar in this catalog for examination dates.

Graduate Aptitude Test. This test is required of all graduate students who intend to enroll in a master's degree program. May be taken before registration. Also given during the regular semester. Make reservations for this test at the Test Office, Administration Building. Refer to the Graduate Bulletin for full information and test dates.

ADMISSION REQUIREMENTS

Requirements for admission to San Diego State College are in accordance with Title 5, Chapter 5, Subchapter 2 of the California Administrative Code as amended by the Board of Trustees of the California State Colleges on January 21, 1965. A prospective applicant who is unsure of his status under these requirements is encouraged to consult with a school or college counselor or contact the college admission office.

ADMISSION AS A FRESHMAN

An applicant who has had no college work will be considered for admission under one of the following provisions. Except as noted, submission of the results of the American College Test is required.

California High School Graduates and Residents. An applicant who is a graduate of a California high school or a legal resident for tuition purposes must have a grade point average and composite score on the ACT which provides an eligibility index * placing him among the upper one-third of California high school graduates. The grade point average is based upon all high school work taken, excluding work completed in the freshman year as well as any courses in physical education or military science. The table below does not cover every case, but gives several examples of the test score needed with a given grade point average to be eligible for admission.

Grade Point Average	*ACT Needed*
3.21 and above	Eligible with any score
2.80	19
2.40	27
2.00	35
1.99 and below	Not eligible

Non-Residents Graduating from High Schools in Other States or Possessions. An applicant who is a non-resident for tuition purposes and who is a graduate of a high school in another state or a U.S. possession must have an eligibility index which would place him among the upper one-sixth of California high school graduates. The minimum required eligibility index is ACT 826 and is calculated as in the previous section.

Graduates of High Schools in a Foreign Country. An applicant who is a graduate of a foreign high school must have preparation equivalent to that required of eligible California high school graduates. The college will carefully review the previous record of all such applicants and only those with promise of academic success equivalent to that of eligible California high school graduates will be admitted. Such applicants are not required to take the ACT except when specifically requested to do so.

Non-High School Graduates. An applicant who is over 21 years of age, but has not graduated from high school will be considered for admission only when his preparation in all other ways is such that the college believes his promise of academic success is equivalent to that of eligible California high school graduates.

High School Students. A student still enrolled in high school will be considered for enrollment in certain special programs if he is recommended by his principal and his preparation is equivalent to that required of eligible California high school graduates. Such admission is only for a given program and does not constitute the right to continued enrollment.

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* For 1968–69 the minimum eligibility index is ACT—741. It is computed by multiplying grade point average by 200 and adding it to 10 times the composite ACT score.

Recommended Preparation. Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at San Diego State College. While no course pattern is required, the applicant to be properly prepared to undertake a full program of studies and particularly to pursue the required program in General Education, is strongly encouraged to include the following subjects as minimally adequate background for college work:

1. College preparatory English.
2. Foreign language.
3. College preparatory mathematics.
4. College preparatory laboratory science.
5. College preparatory history and/or social science.
6. Study in speech, music, art, and other subjects contributing to general academic background.

The following general outline is suggested as a guide to students in selecting courses in preparation for college.

A TYPICAL HIGH SCHOOL PROGRAM

Subjects	Freshman Year	Sophomore Year	Junior Year	Senior Year
ENGLISH (Four years recommended)	English	English	English	English
SOCIAL STUDIES (Three years recommended)	Social studies		U.S. History	Civics
MATHEMATICS	Algebra	Geometry	Advanced Algebra for science majors; recommended for others	Advanced Mathematics for science majors
SCIENCE		Life science (Botany, Biology, or Physiology)	Chemistry (with laboratory)	Physics (with laboratory)
FOREIGN LANGUAGE (Three or four years in one language recommended)	Foreign language	Continue the same language	Continue the same language	Recommend continue the same language
PHYSICAL EDUCATION	P. E.	P. E.	P. E.	P. E.
ELECTIVES	Recommended for all precollege students: typing, art, music, additional social studies. English; for science majors: slide rule, mechanical drawing. Students should enrich the high school program by selecting freely from courses in the fine arts, practical arts, and the humanities. Many students are availing themselves of the opportunity afforded in high school summer sessions to take courses which otherwise could not be included within the regular semesters.			

ADVANCED PLACEMENT EXAMINATIONS

San Diego State will grant advanced placement and advanced credit to high school students who have attained scores of 3, 4, or 5 on the Advanced Placement Examinations of the College Entrance Examination Board prior to their enrollment at the college. A maximum of 15 semester units, with no more than three units in any one field, will be awarded for these examinations upon completion of one semester at this institution.

High school students who intend to participate in this program should indicate at the time they take the Advanced Placement Examinations that their test scores be sent to the college. To obtain credit or advanced placement, the student should contact the office of the Vice President for Academic Affairs.

ADMISSION AS AN UNDERGRADUATE TRANSFER

Any applicant who has attempted college work will be considered for admission under one of the following provisions. An applicant must report all college work attempted (including extension and correspondence courses) no portion of which may be disregarded in transferring. An applicant disregarding this regulation will be subject to dismissal from the college.

Applicants With 60 or More Semester Units. An applicant who has completed 60 or more semester units or the equivalent will be admitted if he has achieved a grade point average of 2.0 (C) on all college work attempted and was in good standing at the last college attended.

Applicants With Fewer Than 60 Semester Units. An applicant who has completed fewer than 60 semester units or the equivalent may be admitted if he meets the above requirements and he meets requirements currently in effect for first-time freshmen or, if he has been in full-time continuous enrollment at a college since his graduation from high school, he meets the requirements in effect for first-time freshmen at the time of his high school graduation.

OTHER APPLICANTS

An applicant not admissible under one of the above provisions should enroll in a junior college or other appropriate institution. Only under the most unusual circumstances will such applicants be permitted to enroll in the college. Permission is granted only by special action.

ADMISSION OF GRADUATE STUDENTS

FILING OF APPLICATIONS

All students holding a baccalaureate degree who desire to enroll at this college for post graduate study must apply for admission to the college through the Office of Admissions. In making the application, they must observe the procedures outlined above for admission to the college. If accepted, they will be admitted with unclassified graduate standing or with undergraduate standing.

FILING OF RECORDS

The student must file official transcripts from **EACH** college or university attended (including extension, correspondence, summer session, or evening courses). An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received at the Admissions Office become the property of the college and **will not be released nor will copies be made.**

A student who has obtained his degree from San Diego State need not file transcripts, except those transcripts covering work he may have taken at other institutions since graduation. He must, however, file an application for readmission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

Admission With Graduate Standing: Unclassified.

(a) For admission with graduate standing as an unclassified graduate student, a student shall have completed a four-year college course and hold an acceptable baccalaureate degree from an accredited institution; or shall have completed equivalent academic preparation as determined by the appropriate college authorities.

(b) Admission to a state college with graduate standing does not constitute admission to graduate degree curricula.

Admission to Graduate Degree Curricula: Classified. A student who has been admitted to San Diego State as an unclassified graduate may, upon application to the Graduate Division, be admitted to an authorized graduate degree curriculum of the college as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as the appropriate college authorities may prescribe. Only those applicants who show promise of success and fitness will be admitted to graduate degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness, as determined by the appropriate college authorities, shall be eligible to continue in such curricula. Students whose performance in a graduate degree curriculum is judged to be unsatisfactory by the authorities of the college may be required to withdraw from all graduate degree curricula offered by the college.

GRADUATE BULLETIN

The Graduate Bulletin is available at the office of the Graduate Division.

ADMISSION OF FOREIGN STUDENTS

Applicants for admission as either graduates or undergraduates whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. If certificates and transcripts are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to the college.

An applicant whose education has been in a language other than English must take the Test of English as a Foreign Language (TOEFL). This test is administered in most foreign countries and test scores must be received by the college before admission to the college can be granted. Information as to the time and place at which this test is given may be obtained by writing to: Educational Testing Service (TOEFL), Princeton, New Jersey, 08540, U.S.A. In addition, after the student's arrival on the San Diego State College campus, he must take the English Test for Foreign Students which will be used by his adviser to assist the student in planning an appropriate course of study.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State College. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found elsewhere in this catalog.

Upon arrival at San Diego State College the student should obtain an appointment as early as possible with the Adviser for Foreign Students.

LIMITATION OF ENROLLMENT

Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Board of Trustees shall determine the number of students for whom there are available facilities and competent instructors at the college.

REGISTRATION

Students who receive notice that they are eligible for admission to the college must complete additional requirements for registration, such as clearance of residency status, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule and Instructions for Registration*, a publication issued prior to the beginning of each semester and sold at the campus Bookstore.

RESIDENCY STATUS CLEARANCE

The laws of the State of California require this college to determine the residency status of each student enrolling prior to the payment of fees and tuition (if required).

Tuition is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the opening day of the semester for which he proposes to enroll. Every student who has not been a legal resident of the State for said period is classified as a nonresident and is subject to payment of a nonresident tuition fee in addition to fees paid by California residents. (Exemption from payment of the nonresident tuition fee may be granted to an unmarried minor whose parent is in the active military service of the United States and is stationed in California on the opening day of the semester during which the minor proposes to enroll.)

Residence is acquired through the combination of physical presence in California together with the intention of remaining in the state. As a general rule, the residence of an unmarried minor student is determined by the residence of his father. The residence classification of each student is determined in accordance with the California Government Code and the California Education Code.

The attention of the prospective alien student is directed to the fact that he is a nonresident unless, in addition to the general residence requirements for tuition purposes, he has been admitted to the United States for permanent residence in accordance with all applicable laws of the United States. The attention of the prospective student who has not attained the age of twenty-two and whose parents are not California residents and the attention of the Veteran who was not a resident of California at the time of his entrance into the Armed Forces is directed to the fact that presence in California for more than one year does not, of itself, entitle the student to classification as a resident.

The residency classification received by any student is subject to review and change. Every student who is classified as a resident but who becomes a nonresident of California is held responsible for notifying the Residency Office at once. Application for a change of classification with respect to a previous semester will not be received under any circumstances.

A person incorrectly classified as a resident student is subject to reclassification as a nonresident if the incorrect classification resulted from concealed facts or untruthful statements made by him. The student then shall be required to pay all tuition fees which would have been charged to him as a nonresident student.

Information concerning the waiver of the nonresident tuition fee for graduate students is available from the office of the Dean of the Graduate Division.

REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule and Instructions for Registration*, which is available at the student Bookstore prior to the beginning of each semester. Priority numbers appear on the Notice of Admission for entering students, and on the permanent identification cards for students continuing their uninterrupted enrollment in the regular semesters.

ADVISING

Provision is made at the time of registration for each new student to obtain assistance from a faculty adviser in arranging a program. The faculty adviser is assigned at the time of registration. Each student should thereafter schedule a conference with his adviser at least once during each semester.

GENERAL REGULATIONS

STUDENT RESPONSIBILITY FOR CATALOG INFORMATION

Students are held individually responsible for the information contained in the catalog. Failure to read and comply with college regulations will not exempt a student from whatever penalties he may incur.

MARKING SYSTEM

GRADES AND GRADE POINTS

The following grades and grade points are used in reporting the standing of students at the end of each semester:

Grade		*Grade Points*	*Grade*		*Grade Points*
A	Outstanding achievement	4	D	Passing	1
B	Commendable	3	F	Failure	0
C	Satisfactory	2	I	Incomplete	0

Cr	Credit	–	(Not counted in grade average, but units allowed)
Aud	Audit	–	(No credit and not counted in grade average)
W	Withdrawal passing	–	(Not counted in grade average)
WF	Withdrawal failing	0	(0 grade points for units attempted)

GRADE POINT AVERAGE

The scholarship or grade point average is determined by dividing the total number of grade points earned by the number of units attempted. The minimum satisfactory grade-point average for a bachelor's degree or recommendation for transfer to another collegiate institution is 2.0 (grade of C). The student must have earned at least twice as many grade points as units attempted.

INCOMPLETE GRADE

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. One calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. **An incomplete cannot be removed by repeating the course.**

If the student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

This regulation does not apply to the theses courses numbered 299, which are not counted as units attempted until the final grade has been assigned, provided that the course be completed within the time permitted by the Graduate Office. Students must complete the thesis within one calendar year after registration in the course. If the thesis is not completed within this period, the student must re-register for the course.

INCOMPLETE AT TIME OF GRADUATION

A candidate for graduation with the baccalaureate degree whose record carries an incomplete which was received within the last calendar year will be graduated without the opportunity of making up the incomplete if he is otherwise eligible for graduation; however, the incomplete will be counted as units attempted in determining grade point averages and the incomplete cannot be made up after the degree has been granted. If the student does not wish to be graduated with the incomplete on his record, he must officially withdraw as a candidate for graduation.

GRADE REPORTS TO STUDENTS

Following the close of the seventh week of instruction (eighth week of the semester), reports are sent to students who are doing unsatisfactory work. These deficiency reports, known as D notices, are optional with an instructor. Students should be aware of their progress in a course and not depend upon receipt of formal notice if work is unsatisfactory.

At the end of each semester or summer session in which the student is enrolled, a grade report is sent to the student.

SCHOLASTIC PROBATION

Any student, undergraduate or graduate, whose scholarship record falls below a C average (2.0) for all college work attempted or all college work attempted at San Diego State College will be placed on probation.

Probation may be continued provided that the student obtains a C average or better each semester while on probation. The student will be removed from probation when he has attained a C average or better on all college work attempted and on all college work attempted at San Diego State College.

SCHOLASTIC DISQUALIFICATION

DISQUALIFICATION

Any student on probation whose scholarship falls below a C average (2.0) in any single semester or summer session will be subject to disqualification and dismissal from the college.

Veterans' Eligibility

Veterans who are disqualified from further attendance at this college forfeit their rights to veteran benefits. Specific information should be obtained from the Veterans Administration regarding continuance of education.

PETITION FOR REINSTATEMENT

A disqualified student may be reinstated for reasons satisfactory to the Board of Admissions. Applications for reinstatement must be made on forms which may be obtained at the Admissions Office.

STUDENT DISCIPLINE AND ATTENDANCE

Any student may be placed on probation, suspended, or expelled for one or more of the following causes:

(a) Disorderly, unethical, vicious, or immoral conduct.

(b) Misuse, abuse, theft, or destruction of state property.

The period for which the student may be placed on probation or suspended by the president shall not exceed 12 months. Fees or tuition paid by or for the student for the semester or summer session in which he is suspended will not be refunded. If the student is a minor, the president shall immediately notify the parent or guardian of the action taken. (Reference: California Administrative Code, Chapter 5, Sections 41301, 41302, 41303.)

The above penalties may be applied in cases involving academic dishonesty: cheating in tests, examinations, laboratory work, written work (plagiarism)—that is, for any attempt to get credit for work not performed.

STUDENT GRIEVANCES

If a student believes that a professor's treatment of him is grossly unfair or that a professor's behavior is clearly unprofessional, he may bring his complaint to the proper college authorities and official reviewing bodies by following the *Procedures for Handling Student Grievances Against Members of the Faculty*, adopted by the Faculty Senate. A copy of the procedures may be obtained from the Dean of Students.

CREDIT

UNIT OR CREDIT HOUR

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week through one semester of 18 weeks. Two hours of "activity" or three hours of "laboratory" are considered equivalent to one hour of lecture.

CREDIT FOR UPPER DIVISION COURSES

Freshmen may not enroll in upper division or graduate courses (numbered 100 and above); sophomores may not enroll in upper division or graduate courses, with the following exceptions:

(a) A student in the last semester of his sophomore year who is approaching upper division standing and is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load.

(b) A student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Vice President for Academic Affairs or his authorized representative. This written approval must be filed at the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained at the Evaluations Office.

JUNIOR COLLEGE CREDIT

A maximum of 70 semester units earned in a junior college may be applied toward the degree, with the following limitations: (a) No upper division credit may be allowed for courses taken in a junior college; (b) no credit may be allowed for professional courses in education taken in a junior college, other than an introduction to education course.

CONCURRENT MASTER'S DEGREE CREDIT

A senior who is within seven units of completing requirements for the bachelor's degree and whose overall grade point average is 3.0 or above may petition the Graduate Council to take approved 100-numbered courses for concurrent master's degree credit with the remaining requirements for the bachelor's degree. Enrollment in 200-numbered courses is not permitted. The bachelor's degree must be completed at the end of the semester in which the concurrent credit is earned and not more than six units of such credit will be accepted on the minimum unit requirements for the master's degree. The rules of the Graduate Division concerning academic load must be observed. (For further information, refer to the Graduate Office.)

CREDIT FOR EXTENSION COURSES

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State College may be accepted as part of the requirements for the master's degree, subject to limitations described in the section of the catalog on the Graduate Division and in the Graduate Bulletin.

Students desiring to enroll concurrently in extension courses and in the regular college program are subject to the regulations on excess study load. Such students should obtain approval from the Dean of Admissions in advance of registration.

CREDIT BY EXAMINATION

Approval to receive credit-by-examination is granted at the discretion of the appropriate college authorities and under the following conditions:

(1) The student must be matriculated, in good standing (not on probation), be registered in at least one regular course (not Extension) at the time credit-by-examination is authorized, and pay for additional units if cost exceeds fees already paid. Application for credit by examination must be made within the time limits for filing a change of program as listed in the Academic Calendar each semester. In summer sessions the total units earned for courses and examinations can not exceed the limit authorized by the Education Code.

(2) Concurrent approval of the chairman of the department concerned and the Vice President for Academic Affairs is required prior to taking the examination. Forms for approval may be obtained from the Registrar.

(3) Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 200-numbered, 300-numbered, or Extension courses; cannot exceed 30 units as applicable to graduation; and does not count as residence credit.

(4) Credit-by-examination is not treated as part of the student's study load and, therefore, does not require a petition for excess study load; is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is seldom accepted as transfer credit between collegiate institutions.

CREDIT FOR MILITARY SERVICE

The college is guided by the recommendations of the American Council on Education in granting undergraduate credit toward the bachelor's degree for military service. Postgraduate credit is not granted.

To obtain credit for military service, the student must be fully matriculated and enrolled in the college. The military form DD-214 must be filed with the Admissions Office if military credits are to be counted toward the bachelor's degree or used to shorten the time needed for the degree. This form, or equivalent records verifying active military service in the United States armed forces, should be submitted at the time of applying for admission to the college.

COURSES

NUMBERING OF COURSES

Courses numbered 1 through 99 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 100 through 199 are in the upper division (junior and senior years); and those numbered 200 through 299 are strictly graduate courses. Courses numbered 300 or over are professional education courses in the postgraduate program.

AUDITED COURSE

A student who does not wish to take a course for credit may, with the consent of the instructor, enroll as an auditor. An auditor must meet all admissions requirements and pay the same fees required of students taking the course for credit. A student is not permitted to register as an auditor during registration week. A student desiring to audit a class must file a special auditor program card bearing the instructor's signature with the Registrar's Office during the second or third weeks of a semester. No change from regular registration to audit, nor from audit to regular registration will be permitted during the semester. An auditor is not held for examinations and does not receive credit or a final grade in the course.

REPEATED COURSE

A student may repeat a course in which he has received a grade of D or F, but may not receive credit for the course more than once. A repeated course is counted as units attempted and is credited with the grade points earned, the effect being an averaging of the grades. If a student repeats a course in which he has received a grade higher than D, the repeated course will not be counted as units attempted nor will grade points be counted in the student's record. **An incomplete cannot be removed by repeating the course.**

STUDENT CLASSIFICATION

MATRICULATED STUDENT

A matriculated student is one who has complied with all requirements for admission to the college and has received his official Notice of Admission. All students taking courses in any regular semester of the college must be matriculated students. Only in summer sessions or in extension courses may a student who has not matriculated be accepted for enrollment in a college course.

SUMMER SESSION OR EXTENSION-CLASS STUDENT

Each student who enrolls in one or more summer session classes shall be classified as a summer session student. Each student who enrolls in one or more extension classes shall for his extension class work be classified as an extension class student. Such students need not be matriculated students as a prerequisite for enrollment in classes.

RESIDENT OR NONRESIDENT STUDENT

Each student, as a condition for enrollment in a regular semester, must be classified as a resident or a nonresident student. Residency status is defined in the California Administrative Code, Sections 23759, 23760, 41901, and 41902.

LOWER DIVISION STUDENT

Freshman. A student who has earned a total of fewer than 30 semester units.
Sophomore. A student who has earned a total of 30 to 59 semester units, inclusive.

UPPER DIVISION STUDENT

Junior. A student who has earned a total of 60 to 89 semester units, inclusive.
Senior. A student who has earned a total of 90 semester units or more.

GRADUATE STUDENT

Graduate. A student who has completed a four-year college course with an acceptable baccalaureate degree from an accredited institution. For information on classification of graduate students, refer to the section of this catalog on the Graduate Division.

STUDENT PROGRAM AND RECORDS

TRANSCRIPTS OF RECORD

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of $1 is charged (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted. Transcripts from other schools or colleges become the property of this college and **will not be released nor will copies be made.**

EVALUATION

An evaluation is a summary of college work completed and of requirements to be completed for a bachelor's degree or credential. To be eligible for an evaluation, a student must have completed at least 60 units of acceptable college work and be qualified for full matriculation. Authorization for more than one evaluation during any one semester or one evaluation in nine weeks of summer session requires special permission of the Board of Admissions and Evaluations.

A student who has earned 60 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The evaluation is made on the regulations in effect at the time the student entered this college, except as otherwise provided in the California Administrative Code, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section on Graduation Requirements.)

After an interval of five years from the time an evaluation is made, courses in education to be applied toward a teaching credential are subject to re-evaluation.

STUDY LIST LIMITS

Students who enroll for more units than authorized, including courses taken concurrently outside this college, will not receive credit for the excess number of units.

For the undergraduate student, a normal semester's program is 16 units, with 12 units considered the minimum full-time load. A student may carry up to 17½ units with the permission of his adviser. Greater variations are subject to approval of the Vice President for Academic Affairs, or his authorized representative.

Students accepting extensive part-time employment are strongly advised to limit their study loads in college. Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.

For information on study list limits for the graduate program, refer to the Graduate Bulletin.

CHANGE OF MAJOR OR CURRICULUM

At the time of admission to the college, each undergraduate student is assigned to a major field or curriculum, or is designated as an undeclared major. After registration, any student wishing to change his major or curriculum, must make application at the Registrar's Office. The code designation for a major carried on the student's identification card is considered his official major.

Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

WITHDRAWAL AND READMISSION

OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official study list. Any withdrawal from college or withdrawal from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student withdraws officially from college or from a class by the end of the third week of classes, the course will not be recorded on the permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week of classes, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from college (that is, from all courses) will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal from college.

UNOFFICIAL WITHDRAWAL

Unofficial Withdrawal. A student withdrawing unofficially from class or from college will receive failing grades in all courses which he stops attending. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms within the deadlines established for withdrawing.

Veterans unofficially withdrawing will have veteran's allowances immediately suspended and will be subject to full repayment of allowances received after date of unofficial withdrawal.

WITHDRAWAL TO ENTER MILITARY SERVICE

Under certain conditions, a student withdrawing from college to enter military service is entitled to apply for refund of materials and service fees or for partial credit (but not both). To qualify under this regulation, the student must (a) be a civilian who, because of his own initiative, receives orders to immediate extended active duty, or (b) be a civilian who receives orders to immediate extended active duty by government action, or (c) be a reservist called to immediate extended active duty. (Not applicable to other military personnel enrolled in the college.)

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally within 30 days) after the date of withdrawal from college to qualify the student for refund or partial credit. Verification of entry upon extended active duty is required and must be by written statement of the commanding officer or by official copy of orders. Application for withdrawal from college may be made by the student in person, or by telephone or mail. Forms for withdrawal will also be sent to the student if requested by a person designated by the student as his representative in making the request.

If the student is passing in courses at the time of withdrawal from college, partial credit may be granted in undergraduate courses at the rate of one-third credit for completion of the first six weeks of the semester, or two-thirds for the first 12 weeks. The college does not wish to influence the student in choosing between partial credit and refund of fees; however, it should be pointed out that partial credit in a course may not satisfy some specific requirement for which that course may be needed and if the course is later repeated by the student the partial credit will be lost as "repeated" work.

READMISSION

A student who withdraws from college must file application for readmission if a full semester lapses between the time of his withdrawal and return to college. Check calendar for deadline dates on readmission applications.

A $5 application fee for readmission is required if the applicant was not regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, or if the student was enrolled at another institution subsequent to the last attendance at San Diego State. Make check or money order payable to San Diego State College.

CHANGE OF PROGRAM AFTER REGISTRATION

A change of program after registration includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing a section of the same course.

A change of program may be made on or before the published dates. Forms for the change of program may be obtained at the Registrar's Office. A fee of $1 is charged for each change of program made after registration. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

FINAL EXAMINATIONS

No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

GRADUATE DIVISION REGULATIONS

The general regulations described in this section of the catalog apply to both undergraduate and graduate students. For information on additional regulations for graduate students, refer to the section of this catalog on the Graduate Division and to the Graduate Bulletin.

SECOND BACHELOR'S DEGREE

A second bachelor's degree may be earned if the student has an excess of 24 units beyond the minimum requirements for the first bachelor's degree, makes a complete change in major or degree, fulfills all requirements for the degree as required by this college, and has approval of the Vice President for Academic Affairs.

GRADUATION REQUIREMENTS
FOR THE BACHELOR'S DEGREE

SUMMARY OF REQUIREMENTS

To qualify for graduation the student must complete the following requirements: (1) minimum number of units, (2) residence requirement, (3) minimum scholarship average, (4) upper division course requirement, (5) a major, and a minor if required, (6) competency tests, (7) all college regulations, (8) requirement in American institutions, and (9) 45 units of general education in addition to the major, (10) application for graduation.

REQUIREMENTS

1. UNITS

Graduation with a bachelor's degree represents a four-year college course of study with a minimum of 124 to 132 semester units required as follows:

BACHELOR OF ARTS DEGREE. A minimum of 124 semester units.

BACHELOR OF SCIENCE DEGREE. A minimum of 128 semester units (except for students with a major in engineering which requires 132 semester units).

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. A minimum of 124 semester units.

2. RESIDENCE

For all degrees, except the bachelor of education, a minimum of 24 semester units must be earned in residence credit, at least half of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted as residence credit on a unit-for-unit basis. Credit for "extension courses" or "credit-by-examination" cannot be counted as residence credit.

For residence requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree.

3. SCHOLARSHIP

Each student shall complete with a grade-point average of 2.0 (grade C on a five-point scale) or better: (a) all units attempted; (b) all units in the major; and (c) all units attempted at this college.

4. UPPER DIVISION COURSE REQUIREMENTS

Graduation with a bachelor's degree requires a minimum of 36 to 45 semester units in courses carrying upper division credit (may include the major, minor, general education, and electives), distributed as follows:

BACHELOR OF ARTS DEGREE. A minimum of 40 upper division semester units in applied arts and sciences or 45 upper division semester units in liberal arts and sciences.

BACHELOR OF SCIENCE DEGREE. A minimum of 36 upper division semester units.

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. For a description of requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree. Requirements for the B.V.E. degree are 40 upper division units.

5. MAJOR AND MINOR

Each student shall complete as a requirement for graduation one major and, if required by the major department, one minor. Some majors also include a foreign language requirement.

Major. The major consists of a pattern of prescribed upper division courses totaling not less than 24 units for the A.B. degree and not less than 36 units for the B.S. degree. The maximum number of units for a major is determined by the college.

Courses in the major are exclusive of those courses used to meet the requirements in general education. Lower division prerequisite and related courses required by the department in preparation for the major may be used in general education if applicable. Such course or courses, however, may not be used as part of the minimum unit requirement in the student's minor.

Minor. The minor normally consists of from 15 to 22 units, at least six units of which must be in upper division courses. Specific requirements and maximum number of units are determined by the college.

6. COMPETENCY TESTS

To qualify for graduation with any bachelor's degree, except the B.E. degree, each student must demonstrate competence in mathematics, speech, and the writing of English by satisfactorily passing the college tests in these areas or by passing courses or programs of study specifically designated in lieu of these competency tests. For special regulations governing the B.E. degree, refer to that degree. Descriptions of the competency tests follow:

MATHEMATICS COMPETENCY TEST

Mathematics competency may be demonstrated either by successfully completing Mathematics 3, 10B, or 18, or a higher level mathematics course, or by satisfactorily passing the Mathematics Competency Test. Transfer students with 60 units completed take the competency test as a part of their entrance tests. Other students, not planning to take one of the mathematics courses listed above, must take the test at the times listed in the class schedule, published each semester.

Students failing to make a satisfactory score on the test, and not including one of the courses listed above in their degree program, must do individual remedial work, and make a satisfactory score on a second test, which will be administered on an individual basis by the Test Office. Tutorial help is available in the Mathematics Department on a scheduled basis.

SPEECH COMPETENCY TEST

The Speech Competency Test is given to students who are enrolled in Speech Arts 3, Oral Communication, a required course in general education for all bachelor's degrees except the B.E. degree. Students failing the test are required to enroll concurrently in Speech Arts 2, Oral Communication Laboratory, and complete the course for an additional one unit of credit (not applicable to general education) as part of the graduation requirement in speech competency.

WRITING COMPETENCY TEST

The Writing Competency Test must be taken by all students except candidates for the B.E. degree at the first scheduled date for the test following the student's completion of 45 units of college work. All students transferring to this college with 45 units or more of advanced standing credit must take this test before registration regardless of the degree for which they are working. Passing of this test or the retake, which includes the writing of an essay, or satisfactory completion of English W, English 100, or remedial programs prescribed for the student by the College Committee on English is a graduation requirement, except for B.E. degree students.

7. ALL-COLLEGE REGULATIONS

Compliance with all regulations prescribed by the college is a requirement for graduation with any bachelor's degree.

8. AMERICAN INSTITUTIONS

Each student to qualify for graduation with a bachelor's degree shall demonstrate competence in the following areas of American institutions:

1. The Constitution of the United States.
2. American history, including the study of American institutions and ideals.
3. The principles of state and local government established under the Constitution of the State of California.

The student shall meet these requirements by passing a comprehensive examination on these fields prepared and administered by the college or by completing appropriate courses.

Students transferring from other accredited institutions of collegiate grade who have already met these requirements shall not be required to take further courses or examinations therein.

The graduation requirement in American institutions may be fulfilled by any one of the following alternatives:

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COURSES

The graduation requirement in American institutions may be met by satisfactory completion of one of the following groups of courses:

(a) History 17A and 17B
(b) History 172A and 172B
(c) History 184A and 184B
(d) Political Science 1 and 2
(e) Political Science 115 and 142 or 143 or 148

COMPLETION OF AMERICAN INSTITUTIONS THROUGH EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a comprehensive examination in each of the following areas:

1. American history, institutions and ideals
2. United States Constitution
3. California state and local government

Students electing to remove requirements through examination may obtain a bibliography of suggested reading at the Evaluations Office in the Administration Building. Examinations for removal of these requirements are given once each semester and in Term I summer session.

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COMBINATION OF COURSES AND EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a combination of courses or a combination of courses and examinations in the required areas.

Students electing to remove requirements in this manner should select courses from those listed below:

Courses meeting requirements in American History	**Courses meeting requirements in U.S. Constitution**	**Courses meeting requirements in California Government**
History 8A and 8B	Political Science 2	Political Science 2
History 176A and 176B	Political Science 115	Political Science 115
History 177A and 177B	Political Science 127A and 127B	Political Science 127B
History 179A and 179B	Political Science 139A and 139B	Political Science 142
History 181A and 181B	History 17A	Political Science 143
	History 172A	Political Science 148
	History 177A and 177B	History 8B
		History 17B
		History 172B
		History 189B

9. GENERAL EDUCATION REQUIREMENTS

In order to provide students with opportunities for education which contributes to their effectiveness as citizens, as members of social groups, and as individuals capable of appreciating and participating in the culture in which they live, a plan of General Education requirements has been established.

A minimum of 45 semester units in general education must be completed in addition to courses in the major. The major is defined as the required block of upper division courses. The student should refer to the requirements in his major field before selecting general education courses.

Students with majors in applied arts and sciences must select general education courses in accordance with the pattern described below. Students in liberal arts and sciences must follow the pattern outlined in the section of this catalog on Liberal Arts and Sciences.

The pattern requirements in general education may be fulfilled by examinations with an accompanying reduction in the 45 units but without course credit. Permission to take such examinations must be obtained from the Dean of the College and have the approval of the department in which the examination will be taken. Examinations in American institutions are given each semester and during the summer session; these examinations may be taken once without the Dean's permission.

PATTERN OF GENERAL EDUCATION AREA REQUIREMENTS

		Minimum Units	*Maximum Units*
A. Natural Sciences		9	12
B. Social Sciences		9	12
C. Literature, Philosophy, and the Arts		8	12
D. Communication		5	8
Oral communication	2–3		
Written communication	3–6		
E. Personal and Social Development		7	10
Health education	2		
Physical education	2		
Psychology	3		
Electives	0–3		
F. General Electives			
Aerospace Studies		0	6
Foreign language		0	6
Mathematics		0	6
Total units required		45	

SPECIFIC REQUIREMENTS

For specific explanation of requirements in general education, refer to the following descriptions:

NATURAL SCIENCES

A. Natural Sciences (9-12 units). Students must include at least one course from Group 1 and at least one of the options from Group 2. If, in meeting these requirements, the student has not completed at least nine units, additional courses may be selected as indicated in Group 3. The courses selected must include at least one unit of laboratory in one of the groups. Not more than 12 units from this area may be counted in the total requirement of 45 units of general education.

Group 1. Life Sciences

(a) Lecture and laboratory
Biology 1 and 2, or 4; Botany 4.

(b) Lecture only
Biology 1.

Group 2. Physical Sciences

(a) Lecture and laboratory

Astronomy 1 and 9; Chemistry 1A or 2A or 10A; Geology 1A or 2 and 3; Physical Science 1 and 3, or 2 and 4, or 5 and 3; Physics 2A and 3A, or 4A, or 5.

(b) Lecture only

Astronomy 1; Geography 1 or 3; Geology 2; Physical Science 1, 2, or 5; Physics 2A.

Group 3. Electives

Any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.

SOCIAL SCIENCES

B. Social Sciences (9-12 units). Students must complete the requirements in Groups 1 and 2, and may elect courses from Group 3 to complete a minimum of nine and maximum of 12 units in this area. The Group 1 requirements may be met in whole or in part by examination, or by other options described in this section of the catalog on American Institutions.

Group 1. American Institutions

History 17A and 17B; or 172A and 172B; or
Political Science 1 and 2; or 115 and 142 or 143 or 148.
If the entire requirement is met by examination, substitute three units in anthropology, economics, geography, (except 1 or 3), or sociology (except 35), and three units in history or political science for the six-unit requirement.

Group 2. Social Sciences

Select one course: Anthropology 1A, 1B, or 1C; Economics 1A or 103A; Geography 2; or Sociology 1 or 10.

Group 3. Electives

Business Administration 30A, 134; or any course in the departments of anthropology, economics, geography (except 1 or 3), or sociology (except 35).

LITERATURE, PHILOSOPHY, AND THE ARTS

C. Literature, Philosophy, and the Arts (8-12 units). Students must complete Groups 1, 2, and 3, and may elect courses from Group 4, but may not count more than six units in any one of the fields of literature, philosophy, art, or music, nor more than 12 units in the area as a part of the 45 unit requirement in general education.

Group 1

Select one course in literature from English 2, 50A, 50B, 52A, 52B, 56A, 56B, 60A, 60B; Humanities 66A, 66B.

Group 2

Philosophy 1A or 20; Humanities 66A, 66B; or any course in literature in the departments of English, foreign language, and comparative literature.

Group 3

Two or three units selected from Art 2A, 5, 50A, 50B, 51; or Music 2, 51, 52, 70 through 88, 151, 170 through 188; or Philosophy 1A or 20 (if neither is elected under Group 2); or students may substitute a maximum of three units of mathematics courses numbered 18 or above.

Group 4. Electives

Up to three units of courses in the departments of art, music, or philosophy; or any course in literature in the departments of English, foreign language, and comparative literature; or Humanities 59A, 59B; or Speech Arts 5, 67, 130, 154A, 154B, 190; or History 4A, 4B, 9A, 9B, 111A, 111B.

COMMUNICATION

D. Communication. (5-8 units). Students must complete Groups 1 and 2, and may elect one course from Group 3, but may not count more than eight units in the area as a part of the 45 unit requirement in general education.

Group 1

Speech Arts 3 or 4 (or two units of 1X for foreign students).

Group 2

English 1A.

Group 3. Electives

English 1B, 61, 62, 106; or Speech Arts 11A, 55A, 60A, 60B.

PERSONAL AND SOCIAL DEVELOPMENT

E. Personal and Social Development (7-10 units). Students must complete Group 1 and may elect courses from Group 2, but may not count more than 10 units in the area as a part of the 45 unit requirement in general education.

Group 1

Psychology 1;
Health Education 21; and
Four semesters of physical education activities.
(A physical education activity taken in summer session may be counted in lieu of one taken during the fall or spring semester.)

Group 2. Electives

Business Administration 40, 182; Health Education 65, 90; Home Economics 1, 4A, 15, 35, 70, 150; Industrial Arts 5, 6, 85; Library Science 1; Psychology 11, 12, 14, 106, 107, 145; Social Welfare 35; Sociology 35.

ELECTIVES

F. Electives (0-18 units). Students must complete the minimum requirements in areas A through E. To fulfill the total requirement of 45 units in general education, students may elect courses within the areas as indicated or may select from the following courses:

1. Aerospace Studies

Four units will be granted for completion of Aerospace Studies 131A-131B. Two additional units will be granted for completion of Aerospace Studies 141A–141B. These six units correspond to the parts of the AFROTC program which lie in the areas of social science, natural science, communication, and other areas of the general education pattern; however, these units will not be included within the unit minima or maxima specified in any such area.

2. Foreign language

A maximum of six units may be selected in foreign language.

3. Mathematics

A maximum of six units in this area of general education electives may be elected in Mathematics 3, 10A, 10B, or in courses numbered 18 and above.

10. APPLICATION FOR GRADUATION

Application for graduation must be made by the student. A candidate for graduation at mid-year must file the application with the Evaluations Office, Administration Building, not later than the end of the third week of classes of the fall semester. A candidate for graduation in June or summer session must file an application for graduation not later than the end of the eleventh week of classes of the fall semester of the academic year in which he expects to graduate. Refer to the calendar in this catalog for deadline date for filing. A $2 fee is charged for filing applications for graduation after deadline date.

ELECTION OF REGULATIONS FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40401. Election of Regulations. A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in a state college may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper college authorities.

AUTHORIZATION FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40400. Procedure for Granting Diplomas, Certificates, and Degrees. The Board of Trustees, upon recommendation of the faculty of the college, shall issue the appropriate diploma, certificate or degree to a student who has completed the prescribed course of study.

GRADUATION WITH HONORS

With the approval of the faculty, graduation with honors is granted to those students in each graduating class who have achieved high grade point averages by the beginning of the fall semester for mid-year graduates and by the end of the fall semester for June and summer session graduates.

The grade point average is computed on work done at this institution, except that if the grade point average for work at other collegiate institutions is lower, that work is included in the computation of the grade point average on which honors will be granted.

To be considered for computations relevant to honors or distinction, grades for removal of Incompletes and all other grade changes must be received in the Registrar's Office no later than the end of the fifth week of the semester in which the student plans to graduate.

GRADUATION WITH DISTINCTION IN THE MAJOR

Upon recommendation of his major department and with the approval of the faculty, a student doing superior work in his major field may be graduated with distinction in that field.

COMMENCEMENT EXERCISES

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at midyear, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session.

COLLEGE CURRICULA

SUMMARY

SUMMARY OF CURRICULA OFFERED

	Arts and Sciences Curricula			Professional Curricula			Graduate Curricula	
	Applied Arts and Sciences		Liberal Arts and Sciences	School of Business Administration	School of Engineering	School of Education	Graduate Division	
Majors	AB	BS	AB	BS	BS	BE	MA	MS
Accounting				BS				
†Aerospace Engineering							--	MS
Anthropology			AB				MA	
Art	AB	--	AB				MA	
Asian Studies			AB					
Astronomy	AB	--	AB				--	MS
Biology	AB	BS	AB				MA	MS
Botany	--	BS	AB					
†Business administration							MBA	MS
Business education							MA	
Chemistry	AB	BS	AB				MA	MS Ph.D.‡
Child Development		BS						
City Planning								MCP
†Civil Engineering							--	MS
Counseling								MS
Economics			AB				MA	
†Education							MA	
†Electrical engineering							--	MS
Elementary education						BE		
Engineering					BS			
English			AB				MA	
Environmental health	--	BS						
European studies			AB					
Finance				BS				
French			AB				MA	
Geography			AB				MA	
Geology		BS	AB				--	MS
German			AB				MA	
Health education	--	BS					MA	
History			AB				MA	
Home economics	AB							MS
Industrial arts	AB	--					MA	
Information systems management				BS				
Insurance				BS				
Journalism			AB					
Latin-American studies			AB				MA	
Management				BS				
Marketing				BS				
Mathematics	AB	--	AB				MA	MS
†Mechanical engineering							--	MS
Microbiology	--	BS	AB					
Music	AB	--					MA	
Nursing	--	BS						
Philosophy			AB				MA	
Physical education	AB	--					MA	
Physical science	*AB	--					MA	

SUMMARY OF CURRICULA OFFERED—Continued

Majors	Arts and Sciences Curricula: Applied Arts and Sciences AB	Applied Arts and Sciences BS	Liberal Arts and Sciences AB	Professional Curricula: School of Business Administration BS	School of Engineering BS	School of Education BE	Graduate Curricula: Graduate Division MA	Graduate Division MS
Physics	AB	BS	AB				MA	MS
Political science			AB				MA	
Psychology	*AB	--	AB				MA	MS
Public administration	AB	--					--	MS
Public safety administration	--	BS						
Radio-TV broadcasting	--	BS						
Real estate				BS				
Recreation administration	AB							
Russian			AB					
Social science	*AB	--	AB				MA	
Social welfare			AB					
†Social work							--	MSW
Sociology			AB				MA	
Spanish			AB				MA	
Special major	AB	--	AB					
Speech arts	AB	--					MA	
Vocational arts						BVE		
Zoology	--	BS	AB					

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* Limited to students in Teacher Education.
† For master's degree only (not an undergraduate major).
‡ Offered jointly with the University of California, San Diego.

SPECIAL CURRICULA

Preprofessional Curricula

Predental
Prelegal
Premedical

Curricula in Broad Field Areas

Humanities
Africa and the Middle East
American studies
Medical technology

Military Curricula

Aerospace Studies (A.F.R.O.T.C.)

Certificate (nondegree) Program

Certificate in public administration

TEACHING CREDENTIALS

Standard teaching credential with specialization in:
  (a) Elementary teaching
  (b) Secondary teaching
  (c) Junior College teaching

Specialized preparation (as a substitute for a minor)
Standard designated services credential
Standard supervision credential
Standard administration credential

MINORS FOR THE BACHELOR'S DEGREE

Accounting
Aerospace studies
Anthropology
Art
Astronomy
Biology
Botany
Business education
Business management
Chemistry
Classics
Comparative literature
Dance
Economics
Employee relations
Engineering
English
Finance
French
Geography
Geology
German
Health education
History
Home economics
Industrial arts
Information Systems Management
Insurance
Italian
Journalism
Library science
Marketing
Mathematics
Microbiology
Music
Philosophy
Physical education
Physical science
Physics
Political science
Production and operations management
Psychology
Public administration
Radio and television broadcasting
Real estate
Recreation
Russian
Social welfare
Sociology
Spanish
Speech arts
Zoology

GRADUATE DIVISION

GRADUATE DIVISION

ORGANIZATION AND ADMINISTRATION

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of Graduate and Professional Studies who also serves as the administrative officer of the Graduate Division.

Under the provisions of Section 41001 of the Administrative Code (see the section of this catalog on Admissions), the Graduate Council, through the Graduate Office, admits all students to authorized graduate degree curricula, determines their eligibility to continue in such curricula, and, in the cases of unsatisfactory performance, requires students to withdraw from all graduate curricula.

The Graduate Council is the appropriate college authority for the administration of all matters related to graduate degree curricula, requirements for which are specified in Section 40504 of the Administrative Code.

ASSOCIATION MEMBERSHIP

San Diego State College is a member of the Western Association of Graduate Schools and the Council of Graduate Schools in the United States.

DEGREES OFFERED

All advanced degrees are conferred by the Trustees of the California State Colleges upon recommendation of the faculty of San Diego State College. These degrees are designed to provide instruction for graduate students in the liberal arts and sciences, in applied fields, and in the professions, including the teaching profession.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy degree in Chemistry is offered jointly with the University of California, San Diego.

MASTER OF ARTS

The Master of Arts degree is offered in the following fields:

- Anthropology
- Art
- Biology
- Business education
- Chemistry
- Economics
- Education
- English
- French
- German
- Geography
- Health education
- History
- Industrial arts
- Latin American studies
- Mathematics
- Music
- Philosophy
- Physical education
- Physical science
- Physics
- Political science
- Psychology
- Social science
- Sociology
- Spanish
- Speech arts

MASTER OF SCIENCE

The Master of Science degree is offered in the following fields:

- Aerospace engineering
- Astronomy
- Biology
- Business administration
- Chemistry
- Civil engineering
- Counseling
- Electrical engineering
- Geology
- Home Economics
- Mathematics
- Mechanical engineering
- Physics
- Psychology
- Public administration

MASTER OF BUSINESS ADMINISTRATION

MASTER OF CITY PLANNING

MASTER OF SOCIAL WORK

ADMISSION PROCEDURES

MATRICULATION

Any student, holding the baccalaureate degree and wishing to be admitted to San Diego State College for post-graduate study, must apply for admission to the college at the Admissions Office and comply with the regulations of the Admissions Office as stated in the section of this catalog on Admissions.

UNCLASSIFIED GRADUATE STANDING

Acceptable graduate students are admitted to the college by the Admissions Office with unclassified graduate standing. Admission to the college with unclassified graduate standing does not constitute admission to graduate degree curricula in the Graduate Division.

CLASSIFIED STANDING IN THE GRADUATE DIVISION

A student who has been admitted to the college by the Admissions Office with unclassified graduate standing who desires to earn an advanced degree must file an application for admission to an authorized advanced degree curriculum and the Graduate Division. If the applicant meets the requirements of Section 41001 of the Administrative Code, he will be admitted to the graduate curriculum of his choice and to the Graduate Division with *classified graduate standing*. The Graduate Office notifies the Registrar to change the status of the student from unclassified to classified standing.

FAILURE TO MEET ADMISSION REQUIREMENTS

If the applicant fails to meet the requirements for classified graduate standing, he may remain in the college with unclassified graduate standing and enroll in any undergraduate course for which he has the necessary prerequisites.

Unclassified graduate students are not eligible to enroll in 200-numbered courses except with permission of the instructor and the Dean of Graduate and Professional Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance in satisfaction of master's degree requirements.

Undergraduate students are not permitted to enroll in 200-numbered courses.

WITHDRAWAL AND REINSTATEMENT

A graduate student who has begun work on a graduate degree and has taken no courses within the last calendar year is considered to have withdrawn from the degree curriculum. If he wishes to resume his work, he must file an application for readmission to the Graduate Division. He will then be required to comply with regulations and requirements in effect at the time his application for readmission is accepted.

Any student who was not in attendance during the semester preceding the semester in which he wishes to enroll must apply for readmission to the college.

Any graduate student whose performance is judged to be unsatisfactory by the Graduate Council may be required to withdraw from all graduate degree curricula offered by San Diego State College.

ADVANCED DEGREE CURRICULA

REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY

The requirements for the Doctor of Philosophy degree are stated fully in the Graduate Bulletin.

REQUIREMENTS FOR MASTER'S DEGREE

The minimum requirements for the Master of Arts degree, the Master of Science degree, the Master of Business Administration degree, Master of City Planning degree, and the Master of Social Work degree are established by the Board of Trustees of the California State Colleges. Students seeking to enter a curriculum in the Graduate Division leading to these degrees must comply with the admissions procedures described above, be advanced to candidacy, and meet the scholastic, professional and personal standards, including the passing of examinations, required in the Graduate Division.

The Master of Arts and the Master of Science degrees require 30 semester units of graduate work; the Master of Business Administration, the Master of City Planning degree, and the Master of Social Work are two-year master's degrees and require 54, 56, and 58 units of graduate work respectively. At least 30 units of work must be earned in residence at San Diego State College for the M.B.A. degree and at least 24 units for all other master's degrees. All acceptable credit must have been earned within seven years of the date when all requirements for the degree are completed. A grade point average of 3.0 (grade of B on a five point scale) or better must be earned in all courses taken to satisfy the requirements for the master's degree.

GRADUATE BULLETIN

Complete details on the operation and administration of these requirements, together with other administrative regulations on graduate study as determined by the Graduate Council, will be found in the Graduate Bulletin, which is available at the Graduate Office.

APPLIED ARTS AND SCIENCES

APPLIED ARTS AND SCIENCES

DEGREE PROGRAMS

REQUIREMENTS FOR THE A.B. OR B.S. DEGREE

Students taking majors offered in applied arts and sciences must complete the graduation requirements listed below for the A.B. or B.S. degree. (Refer to the section of this catalog on Graduation Requirements for more detailed information.)

GRADUATION REQUIREMENTS

1. A minimum of 124 semester units for the A.B. degree or 128 units for the B.S. degree in the general programs in applied arts and sciences.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 40 upper division units for the A.B. degree or 36 upper division units for the B.S. degree.
5. One major, and one minor if required by the department offering the major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competency in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. Forty-five units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.
10. Application for graduation.

MAJORS FOR THE A.B. OR B.S. DEGREE

The major consists of a prescribed pattern of upper division courses totaling not less than 24 units for the A.B. degree or 36 units for the B.S. degree. The number of units beyond the minimum may be specified in the description of the major. Courses in the major may not be counted in the 45 unit general education requirement.

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the department. Additional requirements may include foreign language and a minor. Such courses, not included in the upper division pattern which constitutes the major, may be counted in general education if applicable.

Majors offered are listed below. The major in child development, the major in social science, and the special major, all of which require work in more than one department, are described in the following pages. All other majors are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the major.

LIST OF MAJORS FOR THE A.B. DEGREE

IN APPLIED ARTS AND SCIENCES

- Art
- Astronomy
- Biology
- Chemistry
- Home economics
- Industrial arts
- Mathematics
- Music
- Physical education
- † Physical science
- † Psychology
- Public administration
- Recreation administration
- † Social science
- Special major
- Speech arts

† Limited to students admitted to and continuing in Teacher Education to time of graduation.

Refer also to Liberal Arts and Sciences for a list of majors in that program; and to the School of Education for teaching majors leading to credentials.

LIST OF MAJORS FOR THE B.S. DEGREE

IN APPLIED ARTS AND SCIENCES

- Biology
- Botany
- Chemical Physics
- Chemistry
- Child Development
- Environmental health
- Geology
- Health education
- Microbiology (and medical technology curriculum)
- Nursing
- Physics
- Public safety administration
- Radio and television broadcasting
- Zoology

Refer also to the School of Business Administration and to the School of Engineering for majors leading to the B.S. degree in those fields.

CHILD DEVELOPMENT MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Preparation for the major. Anthropology 1A; Home Economics 4A; Home Economics 70 (or Psychology 106 or Education 111 in upper division); Home Economics 35, Social Welfare 35 or Sociology 35; Psychology 50; Sociology 1; Sociology 60 or Psychology 70 (20 units).

Major. A minimum of 36 upper division units to include Psychology 131, and 175 or Education 112; Sociology 135 or Home Economics 135; Education 111 or Psychology 106 (or Home Economics 70 in lower division); Sociology 140 or Psychology 145; Home Economics 171; and Biology 159; and an additional 18 units to be selected with the approval of the adviser, at least 12 and not more than 15 units of which must be in an area in which the student wishes to concentrate.

SOCIAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in Teacher Education)

This major in social science is offered by the Division of the Social Sciences.

The major is available in applied arts and sciences only to students who have been admitted to and continue in teacher education to time of graduation. The social science major in liberal arts and sciences is available to all students. (Refer to the section in this catalog on Liberal Arts and Sciences for a description of the major in liberal arts and sciences.)

Requirements

Preparation for the major. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (18 units.) Courses recommended for these sequences are as follows: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10.

Major. Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. Courses covering four fields named above, including six units of U.S. history, must be completed either in lower division prerequisites or in the major.

Minor. A minor is not required with this major for the degree.

SPECIAL MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

The special major, consisting of three fields, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the special major may be obtained in the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

Requirements

Preparation for the major. A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

Major. The major consists of 36 upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. If two of the three fields selected are from majors offered only in liberal arts and sciences, the special major is governed by the regulations required by that program. If two of the three fields are selected from those not exclusively in the liberal arts and sciences program, the special major is governed by the regulations in applied arts and sciences. The three fields selected are subject to approval by the Dean of Counseling and Testing.

Minor. A minor is not required with this major.

MINORS FOR THE A.B. OR B.S. DEGREE

The minor consists of from 15 to 22 units, at least six of which must be in upper division courses. A few minors may vary from this pattern. Minors are described in the selection of this catalog on Courses and Curricula, under the heading of the department offering the minor.

LIBERAL ARTS AND SCIENCES

LIBERAL ARTS AND SCIENCES

A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

PURPOSE OF THE PROGRAM

The purpose of a four-year collegiate program in liberal arts and sciences is to develop the student's intellectual interests and mental and physical fitness, and to increase his fund of information, his ability to think accurately, and his judgment, and thus to make him adaptable to various and changing life situations. A liberal education provides a foundation useful for many occupations and especially for graduate work leading into the professions; it is even more valuable as a preparation for assuming civic leadership and for attaining a balanced intellectual and emotional life. Hence the program in liberal arts and sciences aims to introduce college students to the major domains of human knowledge:

1. The natural sciences, physical and biological, for an understanding of the world and the complicated forces of life.
2. The social studies, for developing a knowledge and appreciation of the institutions and complex influences in society and of the privileges and obligations of citizenship.
3. The tools of critical understanding and the integration of knowledge—language, logic, mathematics, psychology, philosophy.
4. The sources of aesthetic enjoyment—literature, the fine arts, music—for understanding, enjoyment, and, if possible, creation of the beautiful.

REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the A.B. degree in liberal arts and sciences. Refer to the section in this catalog on Graduation Requirements for additional, college-wide requirements.

1. A minimum of 124 semester units. No more than 48 units in one department may be counted in meeting the 124 units.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 45 upper division units.
5. One major, and one minor if required by the department offering the major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U. S. Constitution; and California state and local government.
9. Distribution of course work to fulfill the pattern below; this pattern fulfills the general education requirements for the degree.
10. Application for graduation.

GENERAL EDUCATION AND DISTRIBUTION OF COURSES

The degree in liberal arts and sciences requires, in addition to a major field, a distribution of course work to be selected according to the following pattern. Completion of the pattern of courses will satisfy the requirements in general education. No single course may be used to meet more than one requirement in the following pattern of distribution. For prerequisites to certain courses, refer to the description of courses in the section of this catalog on Courses and Curricula.

DISTRIBUTION OF COURSES

Minimum units

A. Natural Science

1. A combination of two or more courses to complete a minimum of nine units fulfilling: 9
   (a) Not less than three units including laboratory in life science from Biology 1 and 2, or 4; Biology 1 and Botany 4.
   (b) Not less than three units including laboratory in physical science from Astronomy 1 and 9; Chemistry 1A or 2A or 10A; Geology 1A or 2 and 3; Physical Science 1 and 3, or 2 and 4, or 5 and 3; Physics 4A, or 2A and 3A, or 5.
   (c) If, in meeting the above requirements, the student has not completed at least nine units, the remaining units of the total requirement of nine may be satisfied by choosing a course, with or without laboratory, from the following: Geography 1 or 3; or any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.
2. Mathematics 3
   This requirement may be satisfied by Mathematics 18 or a higher numbered course. Students accepted in the elementary credential program may satisfy this requirement by taking Mathematics 10A-10B.

B. Social Science

1. American Institutions 6
   Political Science 1 and 2 or Political Science 115 and 142 or 143 or 148; or History 17A and 17B or History 172A and 172B. (May be met in whole or in part by examination or by various options. Refer to the section of this catalog on Graduation Requirements, American Institutions, for an outline of options. If the entire requirement is met by examination, add three units to the requirement in Social Science, below.)
2. Social Science 6
   Two 3-unit courses, choosing from Anthropology 1A, 1B, or 1C (one course only) or 100A or 100B, Economics 1A or 103A, Geography 2, Sociology 1 or 102. If the entire requirement in American Institutions is met by examination, add a second semester to one of the above (but not Geography 1 or 3), or add a 3-unit course in political science.

C. The Humanities and Fine Arts

1. A one-year course in western civilization 6
   Choose either History 4A-4B or English 52A-52B.
   Certain upper division courses may be applied to this requirement; inquire at the office of the Dean of Arts and Sciences.
2. Six units in literature, philosophy, or the history or appreciation of art or music 6
   To be taken in a department or departments other than that in which the requirement in western civilization was met. Applicable courses: Art 5, 50A, 50B, 51; Music 51, 52, 151; Humanities 66A-66B; any course in the Department of Philosophy; any course in literature in the department of English numbered 10 or above, or any course in literature in a foreign language or in comparative literature.
3. The student must complete at least three units in literature or philosophy either in fulfilling the above requirements or elsewhere.

	Minimum units
D. Other	
1. Foreign language	0–12
Each student in this program must demonstrate his knowledge of a language other than his native tongue by the satisfactory completion of twelve units in one foreign language, by written examination administered by the foreign language depardment concerned in consultation with the student's major department, or by four years of one language in high school. (Refer to the specific foreign language in the section of this catalog on Courses and Curricula for complete information on course equivalents for high school language study.)	
2. Communication	
Oral—Speech Arts 3 or 4	2–3
Written—English 1A-1B	6
(If excused from all or part of the requirement in written communication, an equal number of units in literature.)	
3. Psychology 1	3
4. Health Education 21	2
5. Physical education activity courses	2
(Four semesters required.)	
TOTAL:	51–64
Courses to complete the major, the minor (if any), and electives	73–60
UNITS REQUIRED FOR GRADUATION:	124

THE MAJOR

The liberal arts and sciences major consists of a pattern of prescribed upper division courses totaling not less than 24 units. Also required as preparation for the major are lower division prerequisite and related courses, a requirement in foreign language, and a minor, if required by the department offering the major. Departmental majors, listed below, are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors and special curricula, also listed below, are described in detail in the following pages.

LIST OF MAJORS AND CURRICULA FOR THE A.B. DEGREE

IN LIBERAL ARTS AND SCIENCES

Majors

Anthropology
Art
Asian Studies
Astronomy
Biology
Botany
Chemistry
Economics
English
European studies
French
Geography
Geology
German
History
Journalism
Latin-American studies
Mathematics
Microbiology
Philosophy
Physics
Political science
Psychology
Russian
Social science
Social welfare
Sociology
Spanish
Special Major
Zoology

Curricula

Africa and the Middle East
American studies
Humanities

DESCRIPTION OF INTERDEPARTMENTAL MAJORS AND SPECIAL CURRICULA

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

AFRICA AND THE MIDDLE EAST

IN LIBERAL ARTS AND SCIENCES

The curriculum in Africa and the Middle East is an area of emphasis in the social science major. This curriculum is offered by the Division of the Social Sciences.

Preparation for the major. History 4A-4B or Political Science 1 and 3; Economics 1A-1B; Anthropology 1B; and Geography 1. (18 units.)

Major. Thirty upper division units from the departments of anthropology, economics, geography, history, political science, and sociology, chosen with the consent of the adviser and including not less than 15 units in one department and six units in each of two other departments. Required courses in this curriculum include: History 157, 158B; Geography 125 and 130; Political Science 188; Economics 119; and Anthropology 152. Additional recommended courses to complete the requirements above are as follows: History 156, 158A or 121A-121B; Geography 150 and 151; Political Science 170A-170B and 165; Economics 102, 190, and 196; Anthropology 153, 154, and 156.

Foreign Language Requirement. French 1, 2, 3, 4 (or equivalent competence demonstrated by examination). Recommended: Comparative Literature 52A-52B.

Minor. A minor is not required with this curriculum.

AMERICAN STUDIES

IN LIBERAL ARTS AND SCIENCES

The American Studies Curriculum, offered by the Division of the Humanities, is designed for the undergraduate student who wishes to earn a liberal arts degree with a concentration in American studies. The program stresses the American heritage, in both its uniqueness and its debts to other societies. The curriculum centers in American history and literature, and includes relevant fields, outside as well as inside the Division of the Humanities.

Major and Minor Combinations. A departmental major is required in history (with concentration in American history) or in English (with concentration in American literature). A minor, to be approved by the faculty adviser in American Studies, is required, and may be taken in any department of the college which offers an appropriate grouping of courses. Knowledge of one foreign language is required, as specified in the departmental major.

Within the scope of the American Studies program, the English-Social Science or the Social Science-English major-minor combination, as defined by the state for a general secondary teaching credential, may be arranged in consultation with the adviser for the program.

Course Requirements and Recommendations. Arrangement of courses in the American Studies curriculum must conform to the following pattern:

	Units
I. Forty-two units in courses on American culture, with from 12 to 18 units in each of the following fields:	42
(a) History of the United States (b) American literature and philosophy (c) The United States in the social sciences of anthropology, economics, geography, political science, and sociology	
Courses will be selected from approved lists, with approval of the adviser in American Studies.	
II. Fifteen units of courses in the foreign backgrounds of American civilization, as recorded and interpreted by history, literature, philosophy, the arts, and the social sciences	15
Courses will be selected from approved lists, with approval of the faculty adviser in American Studies.	
III. Humanities 198, Integration in the Humanities	3
Total course requirements	60

The student will file with the Evaluations Office a master plan approved by the faculty adviser in American Studies.

ASIAN STUDIES MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Preparation for the major. Six units in History 4A-4B or in Philosophy 1 and 2; six units in Economics 1A-1B or Geography 1 and 2 or Political Science 1 and 3; six units in a third department as listed in the major (18 units).

Major. A minimum of 30 upper division units to include a minimum of 12 in the humanities and 12 in the social sciences, chosen from the courses listed below, and provided that courses be taken in at least two departments in the humanities and at least two departments in the social sciences. From the humanities: Comparative Literature 152A, 152B, 170; History 190, 191A, 191B, 192, 193, 194, 195, 196; Humanities 120A, 120B; Philosophy 135, 150A, 150B. From the social sciences: Economics 102, 115; Geography 131, 132, 150; Political Science 183, 187, 191. Recommended courses in addition to those required: Art 52A-52B; Comparative Literature 70A-70B; Business Administration 165; and other courses relevant to Asia, subject to the approval of the Asian Studies adviser.

Foreign Language Requirement. See above under Distribution of Courses, D.1., Foreign Language (European or Asian language).

Minor. A minor is not required with this major.

EUROPEAN STUDIES MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Preparation for the major. A minimum of 22 units to include History 4A-4B; Geography 1 and 2, or Political Science 1 and 3, or Economics 1A-1B; Art 50A or 50B; and eight units in one of the major European languages (French, German, Italian, Russian, Spanish) beyond the minimum of 12 units required in the liberal arts and sciences program.

Major. A minimum of 30 upper division units to be chosen with approval of the adviser and to be distributed as follows: A minimum of six units in Humanities to include Humanities 150 and 151; six units in a foreign language (French, German, Italian, Russian, Spanish); nine units in Geography, History, Economics, or Political Science; six units in Philosophy, Art, Comparative Literature, Comparative Education, or Music; three units of electives.

Minor. A minor is not required with this major.

HUMANITIES

IN LIBERAL ARTS AND SCIENCES

The Humanities curriculum is offered by the Division of the Humanities.

The intensive program in humanities provides a course of study which gives a comprehensive view of the development of contemporary civilization, with practice in critical thinking and careful expression. The program encourages extensive reading in history, literature, and philosophy, with oral and written discussion.

Specific Requirements and Recommendations

I. A major in one of the departments of the Division of the Humanities, consisting of 24 upper division units and the required introductory courses, plus a minor if required by the major department. Knowledge of one foreign language is required, as specified in the departmental major.

II. Twelve or more upper division units in related fields, selected with approval of the faculty adviser for the curriculum. (May include courses in the minor, if appropriate.)

III. The adviser will assist the student who undertakes this program to distribute his course work among the following areas:
  (a) The Origins of Western Civilization: Greek and Roman, Hebrew, Medieval.
  (b) Western Civilization, 1500-1900; Continental, British, and American.
  (c) Contemporary Civilization.
  (d) Type courses concerned with more than one period; comparative study of Asian Civilization; linguistics and composition; theory.

IV. Humanities 198, Integration in the Humanities (3 units).

The student will file with the Evaluations Office a master plan approved by the adviser for the humanities curriculum.

LATIN-AMERICAN STUDIES MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in Latin-American Studies is offered through the Divisions of the Social Sciences and the Humanities. The major provides (1) a basis for a more effective understanding of the cultures and governments of the western hemisphere; and (2) a basic education and training for a business or professional career involving understanding of Latin-America.

High school students preparing to enter this program should include in the high school course of study not less than three years of study in one foreign language, preferably Spanish or Portuguese. Proficiency in either or both of these languages is indispensable to a successful career in this area of study.

Requirements

Preparation for the major. Spanish 1, 2, 3, 4, 10, 11, and 41; 12 units selected from Anthropology 1C, Economics 1A, 1B, Geography 1, History 8A, 8B, Political Science 1, and 3.

Major. Forty-two upper division units to include Spanish 104A-104B (Comparative Literature 104A-104B will not be accepted), 106A-106B, and Portuguese 131-132; and 24 units in courses in Social Science chosen with the approval of the faculty adviser for this curriculum. At least 21 units must be from courses of Latin-American content.

Minor. A minor is not required with this major.

SOCIAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in social science is offered by the Division of the Social Sciences.

Preparation for the major. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (18 units.) Courses recommended for these sequences are as folows: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10.

Major. Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. Courses covering four fields named above, must be completed either in lower division prerequisites or in the major.

Foreign Language Requirement. See above, under Distribution of Courses, D.1., Foreign Language.

Minor. A minor is not required with this major.

Curriculum in Africa and the Middle East

The social science major may be taken with an emphasis in Africa and the Middle East. For a description of this program, refer to Africa and the Middle East in its alphabetical order above.

SPECIAL MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The special major, consisting of three fields, instead of the usual major-minor pattern, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the special major may be obtained at the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

Preparation for the major. A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

Major. Thirty-six upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. At least two of the fields must be selected from the majors in liberal arts and sciences listed above; the third field may be selected from the same list or from other fields in the college curriculum, subject to approval of the Dean of Counseling and Testing.

Foreign Language Department. See above, under Distribution of Courses, D.1., Foreign Language.

Minor. A minor is not required with this major.

THE MINOR

A minor may be required by the department offering the major. In departments not requiring a minor, the minor is optional with the student. A minor generally consists of from 15 to 22 units, at least six units of which must be in upper division courses.

Minors are described in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor.

PROFESSIONAL CURRICULA

SCHOOL OF BUSINESS ADMINISTRATION
SCHOOL OF EDUCATION
SCHOOL OF ENGINEERING
SCHOOL OF SOCIAL WORK

SCHOOL OF BUSINESS ADMINISTRATION

DEPARTMENTAL ORGANIZATION

Five departments comprise the School of Business Administration: Accounting, Business Law and Finance, Management, Marketing, and Business Education. Each department offers its separate majors and minors.

ACCREDITATION

The School of Business Administration is a member of the American Association of Collegiate Schools of Business.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School of Business Administration. Its chief purpose is to facilitate research by faculty and students in the areas of economics and business. For further information, refer to the section in this catalog on Research Facilities, under Special Programs and Services.

COURSES IN BUSINESS ADMINISTRATION

Courses in business administration are listed and described in the section of this catalog on Announcement of Courses.

THE MASTER'S DEGREE

The School of Business Administration offers the Master of Arts degree for teaching service with a concentration in business education, the Master of Science degree in business administration with concentrations in eight areas, and the Master of Business Administration degree, a two-year graduate program. For further information, refer to the Graduate Bulletin and to the section in this catalog on the Graduate Division.

DEPARTMENTAL MAJORS AND MINORS

The following listed majors and minors are offered by the five departments in the School of Business Administration.

DEPARTMENT OF ACCOUNTING

Major in Accounting with the B. S. degree

Minor in Accounting

DEPARTMENT OF BUSINESS LAW AND FINANCE

Majors with the B.S. degree in the following:
- Finance
- Insurance
- Real Estate

Minors in the following:
- Finance
- Insurance
- Real Estate

DEPARTMENT OF MARKETING

Major in Marketing with the B.S. degree

Minor in Marketing

DEPARTMENT OF BUSINESS EDUCATION

Major in Information Systems Management with the B.S. degree

Teaching major in Business Education with specialization in secondary teaching

Minor in the following:
- Business Education
- Information Systems Management

Teaching minor in Business Education with specialization in secondary teaching

DEPARTMENT OF MANAGEMENT

Major in Management with the B.S. degree

Minors in the following:
- Business Management
- Employee Relations
- Production and Operations Management

GRADUATION REQUIREMENTS

The student must complete the requirements listed below for the bachelor's degree. (Refer to the section of this catalog on Graduation Requirements for specific information.)

1. A minimum of 128 semester units for the B.S. degree.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units for the B.S. degree.
5. One major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education exclusive of courses in the major.
10. Application for graduation.

THE MAJOR

Each major in business administration consists of a pattern of prescribed upper division courses. The minimum number of units required is stated in the description of each major.

Also required as preparation for the major are the lower division prerequisite courses. Some majors require additional courses in a prescribed pattern in areas other than the major.

Business administration majors are not required to complete a minor for the degree.

For information on general education and other degree requirements, refer to the section of this catalog on Graduation Requirements.

Any student majoring in Business Administration must make sure that 40 per cent of the units counting toward graduation are taken outside of the fields of business and economics.

DEPARTMENT OF ACCOUNTING

ACCOUNTING MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (25 units.) Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 36 upper division units to include Business Administration 100, 102, 106, 127, 132, 150, and Economics 100A or 100B; and 12 units selected from the following:

Accounting: Business Administration 101, 107, 108, 112, 114, 115, 116, 118, 119
Economics: Economics 135, 170
Finance, Management, Marketing, and Business Education: Any upper division course may be selected in these areas, but only one course may be taken in each department.

In addition to courses in the major and in general education, 12 upper division elective units outside of business administration and economics are required. (Any courses in one foreign language may be taken to satisfy this requirement.)

ACCOUNTING MINOR

The minor in accounting is offered to students who are not majors in the School of Business Administration. The minor consists of from 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. At least eleven units must be in upper division courses.

DEPARTMENT OF BUSINESS LAW AND FINANCE

Majors

FINANCE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

All students majoring in finance must meet the requirements listed below in (1) the major, and (2) pattern requirements outside the Department of Economics and the School of Business Administration.

(1) REQUIREMENTS WITHIN THE MAJOR FIELD

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 36 upper division units to include Business Administration 100, 127, 128, 130, 132, 150, and 197; Economics 100A, 100B, and 135; the remaining five units to be selected from business administration and economics courses with consent of the adviser.

(2) PATTERN REQUIREMENTS OUTSIDE THE DEPARTMENT OF ECONOMICS AND SCHOOL OF BUSINESS ADMINISTRATION

Eight to nine units in one of the departments of the Divisions of the Life, Physical, or Social Sciences (except Economics) as listed below in (a); and eight to nine units in one of the departments of the Divisions of the Humanities or Fine Arts as listed in (b) below. A minimum of 17 units is required.

Students in the AFROTC program may substitute the program of upper division aerospace studies courses for the above requirement.

No courses taken to satisfy the requirements in (1) may be used to satisfy any other requirement of (2) or of general education.

(a) Divisions of the Life, Physical, and Social Sciences. Courses to be selected with consent of the adviser from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

(b) Divisions of the Humanities and Fine Arts. Courses to be selected with consent of the adviser from all upper division courses and Art 5, 50A, 50B, 51, 52A, 52B, Music 52, and Speech Arts 4, 60A, 60B, 61, and 64, or from all courses in foreign languages, but not less than eight units in one language.

INSURANCE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 36 upper division units to include Business Administration 120, 121, 124, 125, 127, 132 and 150; and 15 units selected from Business Administration 106, 107, 118, 128, 131, 140, 170, 171, 173, 174; Economics 111, 131, 135, 138, 142, 170, 171, and 185. In addition to the upper division units in the major and in general education, twelve upper division elective units outside of Business Administration and Economics are required.

REAL ESTATE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in real estate is offered primarily for the student desiring to acquire a core of essential knowledge of the principles of real estate and urban land economics which will prepare him to engage in professional real estate activities or general business. The student in the School of Business Administration seeking a career in real estate development, land management, real estate finance, insurance, and related fields will have the opportunity to select courses in economics, political science, sociology, and other areas so as to develop a broad educational background in this field of study.

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 20. (28 units.) Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. A minimum of 36 upper division units to include Business Administration 127, 132, 140, 150, 170, 171, 172, 173, 174, Political Science 160, and six to seven units selected from Business Administration 100, 106, 107, 120, 121, 153, Economics 135, 138, and 142. In addition to the upper division units in the major and in general education, twelve upper division elective units outside of Business Administration and Economcs are required.

Minors

FINANCE MINOR

A minor in finance is offered to students who are not majors in the School of Business Administration. The minor consists of from 16 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and Economics 135.

INSURANCE MINOR

A minor in insurance is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 120 and either Business Administraton 121 or 124.

REAL ESTATE MINOR

A minor in real estate is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 170 and six units to be selected with approval of the adviser in this field.

DEPARTMENT OF MANAGEMENT

MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in management with the B.S. degree is offered in three areas of concentration: business management, employee relations, and production and operations management.

Students majoring in management must complete all three of the following requirements: (1) Requirements in the professional curriculum of the major, (2) requirements in one of the areas of concentration of the major, and (3) in addition to the major, pattern requirements outside the Department of Economics and the School of Business Administration.

(1) PROFESSIONAL CURRICULUM WITHIN THE MAJOR FIELD

Preparation for the major. Business Administration 1A-1B, 30A, 80, 83; Economics 1A-1B; Mathematics 12 and 20. (25 units.)

Major. Business Administration 102, 127, 131, 132, 134, 135, 140, 145, 149, 150, Economics 100A, and Mathematics 130A. (37 units.)

(2) AREAS OF CONCENTRATION WITHIN THE MAJOR FIELD

Select one area:

(a) Business Management. Twelve units made up of one upper division three unit course from each of four of the following fields: accounting, business law, economics, employee relations, finance, insurance, marketing, production management, purchasing, and real estate.

(b) Employee Relations. (1) At least six units from Business Administration 141, 142, and 143; and (2) six units from Economics 150, 152, Psychology 105, 121, 124, 133, and Sociology 120. (12 units.)

(c) Production and Operations Management. (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 162, Economics 107, Mathematics 130B, Philosophy 121, 122, Psychology 121, 124. (12 units.)

(3) PATTERN REQUIREMENTS OUTSIDE THE DEPARTMENT OF ECONOMICS AND THE SCHOOL OF BUSINESS ADMINISTRATION

A minimum of 16 units of pattern requirements must be taken. These requirements are met by taking a minimum of eight units in the area of Life, Physical, and Social Sciences as indicated in (a) below and a minimum of eight units in the area of Humanities and Fine Arts as indicated in (b) below. These requirements may also be met by completing the two year AFROTC program of upper division aerospace studies courses.

Courses taken to satisfy the requirements shown in (a) and (b) below are in addition to and may not be used to satisfy any requirements in general education nor may they be used to satisfy requirements stated in (1) and (2) above.

(a) Life, Physical, and Social Sciences: A minimum of eight units to be selected, with consent of adviser, from *one* department in the Divisions of Life, Physical, or Social Sciences, excluding the Department of Economics. All upper division courses and the following lower division courses are suitable: Chemistry 1A-1B, 4, or 5 and Physics 4A-4B-4C.

(b) Humanities and Fine Arts: A minimum of eight units to be selected, with consent of adviser, from *one* department in the Divisions of Humanities and Fine Arts. All upper division courses and the following lower division courses are suitable: Art 5, 50A-50B, 51, 52A, 52B, Music 52, Speech Arts 4, 60A-60B, 61, and 64. All courses in a foreign language are acceptable but at least eight units must be taken in one language.

Minors

BUSINESS MANAGEMENT MINOR

A minor in business management is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and six to nine additional units of upper division courses approved by the adviser in this field.

EMPLOYEE RELATIONS MINOR

A minor in employee relations is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 140, and three to six units of upper division courses approved by the adviser in this field.

PRODUCTION AND OPERATIONS MANAGEMENT MINOR

A minor in production and operations management is offered to students who are not majors in the School of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 135, and three to six units of upper division courses approved by the adviser in this field.

DEPARTMENT OF MARKETING

MARKETING MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major is planned so that the student will attain a comprehensive, rigorous knowledge of marketing. It is important to the student that he integrate this professional knowledge with the mainstream of culture and education. Sixty-two units of professional courses are required for the major in marketing. The student is urged to plan the additional 66 units to include not only the general education requirements but also exploration of as many subject fields in other departments of the college as possible, preferably concentrating his work in a limited number of fields and in upper division courses. Consultation with the adviser is recommended.

Requirements

Preparation for the major. Business Administration 1A-1B, 30A-30B, 80, 83; Economics 1A-1B; Mathematics 20; and either Economics 2 or Mathematics 12. (28 units.) Students who expect to use any course in Business Administration or Economics to meet general education requirements must complete compensating units in courses outside these areas.

Major. A minimum of 37 upper division units to include Business Administration 127, 132, 150, 151, 156, 157, and 158; nine units selected from Business Administration 152, 153, 154, 159, 161, 162, 163, 164, 165; and nine units to be selected from Economics and/or Business Administration to include at least three units from Business Administration 140, 145, or Economics 150 and at least three units from Business Administration 102, 135, or 149. In addition to the upper division units in the major and in general education, 12 upper division elective units outside of Business Administration and Economics are required.

MARKETING MINOR

A minor in marketing is offered to students who are not majors in the School of Business Administration. The minor consists of at least 19 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 150, and six additional units of upper division courses in this field approved by the adviser.

DEPARTMENT OF BUSINESS EDUCATION

INFORMATION SYSTEMS MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in information systems management is offered with three options: (1) the major with a concentration in information systems (38 upper division units); (2) the major with a concentration in executive secretarial (37 upper division units); or (3) the major with a concentration in automation and data processing (38 upper division units).

Students must complete the following requirements: (1) Courses in the professional curriculum, required of all majors; (2) courses in one of the areas of concentration; and (3) from 11–16 additional units of general electives approved by the adviser, at least 10–11 of which must be in courses outside the fields of business administration and economics.

PROFESSIONAL CURRICULUM

(Required of all students in the major)

Preparation for the major. Business Administration 1A, 1B, 30A, 30B, 73, 80, 83; Economics 1A, 1B, Economics 2 or Mathematics 12, and Mathematics 20 (29 units). Demonstration of proficiency in typing is required. Students who expect to use Economics 1A and/or Business Administration 30A to meet general education requirements must complete compensating units in courses outside business administration and economics.

Major. Twenty-five units to include Business Administration 102, 127, 132, 135, 150, 184, 185, and 186. In addition, students must complete the courses in one of the areas of concentration.

AREAS OF CONCENTRATION

(Select one option)

(1) INFORMATION SYSTEMS

Preparation for the major. Business Administration 74. (2 units)

Major (continued). Thirteen upper division units, in addition to courses in the professional curriculum, to include the following: Business Administration 100; and nine units selected from Business Administration 120, 128, 145, 159, 164, 182, 189.

(2) EXECUTIVE SECRETARIAL

Preparation for the major. Business Administration 72, 74, and 75B (7 units).

Major (continued). Twelve upper division units in addition to the courses in the professional curriculum to include Business Administration 183 and nine units selected from Business Administration 120, 128, 145, 164, 182, 189.

(3) AUTOMATION AND DATA PROCESSING

Major (continued). Thirteen upper division units, in addition to the courses in the professional curriculum, to include the following: Business Administration 100, 187, and 188; and three additional units selected from Business Administration.

GENERAL ELECTIVES

In addition to requirements in the professional curriculum, in the general education requirements, and in one of the areas of concentration, students should select upper or lower division electives to complete their required 128 units for the degree. Nine units of these electives must be outside of business administration and economics.

BUSINESS EDUCATION MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the Information Systems Management Major for the B.S. degree as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six upper division or graduate units acceptable toward the credential.

Minors

BUSINESS EDUCATION MINOR

A minor in business education is offered to students who are not majors in the School of Business Administration. The minor consists of not less than 21 units, exclusive of course equivalents, to include the following courses: Business Administration 1A, 1B, 72, 73, 74; nine upper division units, including Business Administration 189; and three additional lower or upper division units selected in consultation with the adviser in business education.

INFORMATION SYSTEMS MANAGEMENT MINOR

A minor in Information Systems Management is offered to students who are not majors in the School of Business Administration. The minor consists of 21 units and includes the following courses: Business Administration 1A, 1B, 73, and 74 (proficiency in typewriting required); and fourteen additional units to be selected in consultation with the business education adviser. Nine of these additional units must be in upper division.

BUSINESS EDUCATION MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

Requirements for the teaching minor in business education for secondary teaching are the same as requirements for the minor in business education for the bachelor's degree.

SCHOOL OF
EDUCATION

ACCREDITATION

San Diego State and the School of Education are fully accredited by the California State Board of Education and the National Council for Accreditation of Teacher Education.

BUREAU OF EDUCATIONAL RESEARCH

The Bureau of Educational Research is an organized research activity of the School of Education. Its chief purpose is to facilitate research by faculty and students in the area of education. For further information, refer to the section in this catalog on Research Facilities, under Special Programs and Services.

TEACHER EDUCATION PROGRAM

The college maintains a modern elementary school on the campus where it has developed an extensive program for the education of elementary school teachers. The classroom-laboratory plan which calls for the use of workrooms, the library, and shops, affords unusual opportunities for the induction of students into teaching. By arrangement with schools in the San Diego metropolitan area, observation, participation, and directed teaching are provided in the elementary and secondary schools and in the junior college.

COURSES IN EDUCATION

Courses in education are described in the section of this catalog on Courses and Curricula.

DEGREES

MASTER'S DEGREE

The Master of Arts degree with a major in education with concentrations in ten areas and a Master of Science degree in counseling are offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

BACHELOR'S DEGREE

Graduation Requirements. Requirements for graduation with a bachelor's degree are outlined in the section of this catalog on Graduation Requirements.

Bachelor of Education Degree. The bachelor of education degree is currently offered with the elementary or kindergarten-primary credential to teachers holding a provisional credential in either of these areas.

Bachelor of Vocational Education Degree. The bachelor of vocational education degree is currently offered to vocational teachers of California who are recommended by the Board of Examiners for Vocational Education.

CREDENTIALS

Anyone wishing to teach or provide other types of professional service in the public schools of California must hold a credential issued by the State Department of Education. Credentials which are currently available are listed below with an indication of the school service authorized by each. A student who completes the prescribed program at San Diego State College will be recommended by the college to the State Department of Education for the credential.

LIST OF CREDENTIALS

Credential	**School Service Authorized**
(1) A standard teaching credential with specialization in:	
(a) Elementary teaching	Teach kindergarten and grades one through nine
(b) Secondary teaching	Teach major and minor in grades seven through twelve
(c) Junior College teaching	Teach major in junior college
	By completing specialized preparation, additional authorization may be earned in: (1) *Specialization in Teaching of Exceptional Children,* authorizing teaching in the area of mentally retarded or speech and hearing handicapped in kindergarten and grades one through fourteen; and (2) *Specialization in Librarianship,* authorizing service as librarian and teaching of librarianship in kindergarten and grades one through fourteen.
(2) † A standard designated subjects credential	Teach trade or technical courses at grade levels specified on the credential
(3) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(4) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal
(5) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential

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† This program is not offered at San Diego State College.

ADMISSION TO TEACHER EDUCATION

APPLICATION FOR ADMISSION

Students who plan to earn a credential for elementary teaching should apply for admission to Teacher Education during the second semester of the sophomore year. Students transferring in after the freshman year should apply immediately. For secondary teaching, application for admission should be made during the junior year. For other credentials, see the appropriate coordinator for details. Application may be made at a special meeting held each semester. (For date and place of this meeting, refer to the calendar in this catalog.) No courses in education may be taken until admission is granted; any exception to this rule must have the approval of the appropriate admissions committee.

STANDARDS FOR ADMISSION

The standards for admission to Teacher Education are different from those for admission to the college; therefore, admission to the college does not guarantee that the student will be admitted to Teacher Education. The committees on admission to Teacher Education will base their decision upon the following factors:

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the use of English and satisfactory ability in arithmetic, handwriting, reading and spelling as indicated by scores on fundamentals tests for those applying for elementary education. (See the college calendar for dates of these tests which should be taken in the second semester of the freshman year.)
3. Satisfactory scores on The Comprehensive College test and mathematics competency test, for secondary and junior college teaching. (See the college calendar for dates of these tests, which should not be taken prior to the junior year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and, for secondary education only, with a representative of the department in which the student is a major. The Admissions Committee will base its evaluation upon the following factors established by the Board of Trustees: intelligence, scholarship, professional aptitude, personality and character, speech and language usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given curriculum and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
    a. Elementary teaching, 2.20.
    b. Health and development credential, 2.20.
    c. Secondary teaching, all subjects, 2.50, and major field, 2.75.
    d. Junior college teaching, 2.50.
8. For administration, supervision, and pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For secondary teaching candidates, an official evaluation and program approved by the authorized departmental representative in the student's major field and by a representative in secondary education.

TRANSFER STUDENTS

Elementary education students who have completed two or more semesters of work in another college, upon transferring to San Diego State College, should make application for admission to Teacher Education as soon as they enroll in the college. Secondary education students should enroll when they have achieved junior standing. All transfer students admitted to the college with either upper division or graduate standing should take the necessary tests for admission to Teacher Education at the earliest time the tests are given. (See academic calendar for dates.)

TRANSFER STUDENTS WITH PROVISIONAL CREDENTIALS

Teachers with a provisional credential or partial fulfillment of requirements credential who are teaching and working concurrently toward a regular credential may have a program designed to fit their background. According to present law, teachers on provisional credentials are required to embark upon a program with an accredited institution leading to a degree and/or a credential before the provisional credential can be renewed. Before the renewal can be certified by San Diego State College, the student must be fully matriculated in the college and must complete admission to Teacher Education. (Refer to the requirements stated above for admission to Teacher Education.) Also, at the time of renewal, successful teaching experience must be verified. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State College. For additional details, see the Coordinator of Elementary Education or the Coordinator of Secondary Education.

ADVANCED STANDING IN TEACHER EDUCATION

A student transferring into San Diego State College with advanced standing must complete a minimum of six units of professional education work in residence at San Diego State College before recommendation for a credential, regardless of extent of education work already completed elsewhere.

EVALUATION OF CREDITS

After an interval of five years, courses in education are re-evaluated and subject to reduction in credit, in light of such new requirements as may have been put into effect and changes in educational procedures. Students formerly in attendance will not be considered to be working in the curriculum until an evaluation and statement of credit has been secured from the Evaluations Office. All courses taken either at this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

GENERAL EDUCATION REQUIREMENTS FOR ELEMENTARY, SECONDARY, AND JUNIOR COLLEGE TEACHING

In addition to meeting the general education requirements for graduation, described in the section of this catalog on Graduation Requirements, credential candidates must meet the pattern of area requirements outlined below. Because these general education requirements for a credential are similar in many respects to those for graduation from San Diego State, students will, by careful selection of courses, be able to meet most of both sets of requirements concurrently.

PATTERN REQUIREMENTS

Forty-five semester units of course work must be completed in the following areas. (Not more than six semester units of course work taken to satisfy this requirement shall apply toward the fulfillment of the requirements for either a major or a minor.)

1. **Humanities,** excluding foreign languages for the purposes of this requirement but including a year of English. (In addition, the applicant shall demonstrate competency in composition either by passing a course in composition or by passing an examination given by the institution in lieu thereof.)
2. **Social Sciences.** (The course work taken to satisfy the requirement of knowledge of the Constitution of the United States may be counted toward this requirement.)
3. **Natural Sciences.**
4. **Mathematics,** requiring as a prerequisite an understanding and knowledge of high school algebra and geometry.
5. **Fine Arts.**
6. **A foreign language.** (The successful completion in an approved institution of an examination covering the speaking, reading, writing, and understanding of a foreign language shall be accepted in lieu of course work in a foreign language but shall not count toward the 45 semester units specified.) For any credential issued prior to September 1, 1967, this foreign language requirement is waived for students who have completed successfully in a high school two full school years in a single foreign language.

Specialization in Elementary Teaching

Candidates for the Standard Teaching Credential with specialization in elementary teaching must complete course work in five of the six areas. In addition, they must have completed three semester units of course work in the theory of the structure, arithmetic, and algebra of the real number system or three semester hours of course work in calculus, if this content has not been included in (4) above.

Specialization in Secondary and Junior College Teaching

Candidates for the Standard Teaching Credential with specialization in secondary school or junior college teaching must complete course work in four of the six areas listed above.

STANDARD TEACHING CREDENTIAL—ELEMENTARY

GENERAL REQUIREMENTS

To be recommended by San Diego State College for the Standard Teaching Credential with specialization in elementary teaching, an applicant shall have completed successfully a program including the following requirements:

I. Four years, or the equivalent, of college or university education with a baccalaureate or higher degree from an approved institution.

II. A fifth year of postgraduate education taken at the upper division or graduate level. (Under certain conditions, including the completion of a major and of the required undergraduate work in professional education, this fifth year may be postponed, and completed during the first five years of teaching. Further details on this option are available in the office of the Coordinator of Elementary Education.)

III. Forty-five semester hours in general education as outlined in the preceding section on General Education.

IV. One of the majors specified for elementary teaching. If the major is not in an academic subject, the completion of one or two minors is an additional requirement. For further information, see the Coordinator of Elementary Education.

V. The following professional courses in education: Education 111, 112, 130, 131, 132, 101 or 202 (30-31 units). This sequence of professional courses will typically begin in either the first or second semester of the junior year.

VI. The following courses (unless taken as part of the major, minor, or general education): Art 2A, Geography 1, 2, Health Education 150, Mathematics 10A or 18, Music 2, Physical Education 53, and Speech Arts 3.

MAJORS FOR ELEMENTARY TEACHING

Majors for elementary teaching available at this college are listed below. A description of each departmental major will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors, not limited to a single department, are described below. Although these teaching majors need not be completed until the end of the postgraduate year, most students will need to complete an undergraduate major applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching major in the undergraduate program, including prerequisites, will normally meet the requirements for the corresponding major for a bachelor's degree. Any exceptions are noted in the description of the teaching major. Students planning to major in English, French, German, or Spanish should note that these majors for the degree are offered only in the Liberal Arts and Science program; candidates for a degree with these majors must complete graduation requirements for that program. Students with majors other than those listed below should see the Coordinator of Elementary Education to clarify credential requirements.

LIST OF MAJORS

Majors will be selected from the following list:

DEPARTMENTAL MAJORS

Art
Chemistry
English
French
German
Physics
Spanish

INTERDEPARTMENTAL MAJORS

Fine Arts
Fine Arts and Humanities
Fine Arts and Social Sciences
Physical Sciences
Social Sciences

DESCRIPTION OF INTERDEPARTMENTAL MAJORS FOR ELEMENTARY TEACHING

FINE ARTS MAJOR

FOR ELEMENTARY TEACHING

Preparation for the major. Art A and 2A; Music 2, 10A, 10B, 10C; and Speech Arts 3. (14 units)

Teaching Major. Twenty-six upper division units to include the following: Art 110, 118A, 117A or 119A, and 108 or 156; Music 144, 145, 146A; either one course selected from Art 106A, 111A, 117A, 119A, 120A or two units from Music 170 through 188; and nine units selected from Speech Arts 110, 118A, 118B, 140A, 142 (maximum 3 units), 152, 154A, 155, 159.

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

FINE ARTS AND HUMANITIES MAJOR

FOR ELEMENTARY TEACHING

Preparation for the major. Courses must be selected from the same two areas as those to be used for the upper division concentrations; Art A, 2A; or Music 2, 10A, 10B, 10C; or Speech Arts 3, 63; plus six units in either English or Philosophy.

Teaching Major. At least nine units as specified in one of the following areas: Art 110, 118, 117A or 119A, 108 or 156; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; Speech Arts 110, 118A, 118B, 140A, 142 (maximum 3 units), 152, 154A, 155, 159. At least 15 additional units as specified in one of the following areas: Philosophy 101, 103, 123, 127, either 128 or 135; English 191 or 192, six units selected from 143A, 143B, 151, or from courses numbered 115 through 129B, six units from courses numbered 130 through 152B (except 143A, 143B, 151).

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

FINE ARTS AND SOCIAL SCIENCES MAJOR

FOR ELEMENTARY TEACHING

Preparation for the major. Courses must be selected from the same two areas as those to be used for the upper division concentrations: Art A, 2A; Music 2, 10A, 10B, 10C; or Speech Arts 3, 63; plus six units in one of the following: anthropology, economics, geography, history, political science, psychology, or sociology.

Teaching Major. At least nine units as specified in one of the following areas: Art 110, 118, 117A or 119A, 108 or 156; Music 144, either 143 or 145, 146A, and two units selected from courses numbered 170 through 188; Speech Arts 110, 118A, 118B, 140A, 142 (maximum 3 units), 152, 154A, 155, 159. At least fifteen additional units as specified in one of the following areas:

Anthropology 100A, 100B, 102, 103, 120, 151, 152, 156, 163, and 165.

Economics 100A, 100B, 102, 103A, 103B, 110, 111, 131, 135, 150, 170, 195, and 196.

Geography. Six to nine units selected from Geography 120, 121, 122, 123, 124, 125, 126, 127, 129, 130, 131, 132; and six to nine units selected from Geography 100, 101, 105, 110, 150, 151, 152, 153, 155, 180, 181A, 181B, and 182.

History. Prerequisites: History 4A and 4B. History 131A, 131B, 143A, 143B, 144A, 144B, 171A, 171B, 189A, 189B, 191A, and 191B.

Political Science. Twelve units from Political Science 105, 111A, 111B, 112, 116, 120, 125, 138, 142, 143, 147, 170A, 170B; and three units from Political Science 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, and 191.

Psychology 105, 109, 131, 145, 150.

Sociology 102, 110, 114, 122, 125, 136, 140.

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in applied arts and sciences. A minor is not required with this major for the degree.

PHYSICAL SCIENCES MAJOR

FOR ELEMENTARY TEACHING

Preparation for the major. Lower division course work in each of the following areas: astronomy, chemistry, geology, mathematics, and physics, including prerequisites for the upper division courses selected for the major.

Teaching Major. A minimum of 24 upper division units in any two or more of the academic subject areas of the physical sciences and mathematics, selected with approval of the adviser in the physical sciences for teaching programs.

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a physical science major with the A.B. degree in applied arts and sciences. A minor is not required for the degree.

SOCIAL SCIENCES MAJOR

FOR ELEMENTARY TEACHING

Preparation for the major. A six-unit sequence in one of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, (6) sociology; and six additional units in one or two of the remaining fields.

Teaching Major. A minimum of 24 upper division units to include 12 units from any one field named above; and six units from each of two additional fields named above. (It is recommended that no less than six units of upper division or graduate work in the field selected for the 12-unit concentration be taken in the postgraduate year.)

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree in either applied arts and sciences or in liberal arts and sciences. A minor is not required with this degree.

MINORS FOR ELEMENTARY TEACHING

Students who are not completing an academic subject major must complete an additional requirement of one or two minors. The acceptable minors for elementary teaching are listed below. For further information see the Coordinator of Elementary Education.

A description of each minor can be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor. Specialized preparation which may be substituted for a minor is described later in this section of the catalog under the title: Specialized Preparation.

LIST OF MINORS

Minors will be selected from the following list:

- Biology
- Chemistry
- English
- French
- Geography
- German
- Health Sciences
- Industrial Arts
- Italian
- Mathematics
- Music
- Physical Education
- Physics
- Psychology
- Russian
- Spanish
- Speech and Drama
- Specialization in
  - (a) Librarianship
  - (b) Teaching of Exceptional Children

STANDARD TEACHING CREDENTIAL—SECONDARY

GENERAL REQUIREMENTS

To be recommended by San Diego State College for the Standard Teaching Credential with specialization in secondary teaching, an applicant shall have completed successfully a program including the following requirements:

I. Four years, or the equivalent, of college or university education with a baccalaureate or higher degree from an approved institution.

II. A fifth year of postgraduate education taken at the upper division or graduate level.

III. Forty-five semester units in general education as outlined in the preceding section on General Education.

IV. One of the majors specified for secondary teaching.

V. One of the minors specified for secondary teaching, or specialized preparation to serve as (1) a librarian or a teacher of librarianship, or (2) a teacher of exceptional children. (When the major is in a nonacademic subject, the minor must be in an academic subject and must include at least twelve upper division or graduate units.)

VI. The following professional courses in education: Education 100, 110, 121, 180A-B-C-D, and 252 (24 units). Also required is Health Education 151 (2 units).

MAJORS FOR SECONDARY TEACHING

Candidates for the Standard Teaching Credential with specialization in secondary teaching must complete one major and one minor in addition to the required courses in professional education.

Majors for secondary teaching available at this college are listed below. A description of each departmental major will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the major. Interdepartmental majors, not limited to a single department, are described below. Although these teaching majors need not be completed until the end of the postgraduate year, most students will need to complete an undergraduate major applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching major in the undergraduate program, including prerequisites, will normally meet the requirements for the corresponding major for a bachelor's degree. Any exceptions are noted in the description of the teaching major.

LIST OF MAJORS

Majors will be selected from the following list:

DEPARTMENTAL MAJORS

- Art
- Biological Sciences
- Business Education
- Chemistry
- Economics
- English
- French
- Geography
- German
- Health Sciences
- History
- Home Economics
- Industrial Arts
- Mathematics
- Music
- Physical Education (Men)
- Physical Education (Women)
- Physics
- Psychology
- Russian
- Spanish
- Speech and Drama

INTERDEPARTMENTAL MAJORS

- Physical Sciences
- Social Sciences

DESCRIPTION OF INTERDEPARTMENTAL MAJORS FOR SECONDARY TEACHING

PHYSICAL SCIENCES MAJOR

FOR SECONDARY TEACHING

The teaching major in the physical sciences for secondary teaching requires an undergraduate major in physical science, or equivalent.

The physical sciences teaching major requires a minimum of 24 upper division units, 15 units of which must be in chemistry or physics. This requirement can be met in the undergraduate program as part of the physical science major, or may be completed in the postgraduate year. All courses for the teaching major must be approved by the adviser in the physical sciences for teaching programs.

Postgraduate Year. In the postgraduate year the credential candidate must complete a minimum of six upper division or graduate units in the major or minor. Courses in the major must be approved by the adviser in the physical sciences for teaching programs.

Degree Requirements. Students in Teacher Education using this teaching major for a bachelor's degree will be graduated with a major in physical science with the A.B. degree in applied arts and sciences. A minor is not required for the degree; however, a teaching minor, which may be completed in the undergraduate program, is required for the credential.

SOCIAL SCIENCES MAJOR

FOR SECONDARY TEACHING

Preparation for the major. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. Courses recommended for these sequences are as follows: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 1 and 2, Sociology 1 and 10. (18 units.)

Teaching Major (Undergraduate). Thirty upper division units to include 15 units from any field named above; six units from each of two additional fields named above; and three units of electives from any of the fields named above. The major must include six units in U.S. history in either lower or upper division and three units in a fourth field, selected from the social science fields named above.

Postgraduate Year. Six upper division or graduate units to be selected with approval of an adviser for the social sciences major.

Degree Requirements. Students in Teacher Education who complete this teaching major, including prerequisites, in the undergraduate program may offer it as a major for the A.B. degree either in applied arts and sciences or in liberal arts and sciences. A minor is not required with this degree; however a teaching minor, which may be completed in the undergraduate program, is required for the credential.

MINORS FOR SECONDARY TEACHING

Minors for secondary teaching available at this college are listed below. Although these teaching minors need not be completed until the end of the postgraduate year, many students will need to complete an undergraduate minor applicable toward a bachelor's degree.

Students in Teacher Education at the time of graduation who complete the teaching minor in the undergraduate program will normally meet the requirements for the corresponding minor for a bachelor's degree. Any exceptions are noted in the description of the teaching minor, which will be found in the section of this catalog on Courses and Curricula, under the heading of the department offering the minor. Specialized preparation which may be substituted for a minor is described later in this section of the catalog under the title: Specialized Preparation.

LIST OF MINORS

Minors will be selected from the following list:

- Art
- Biology
- Business Education
- Chemistry
- Economics
- English
- French
- Geography
- German
- Health Sciences
- History
- Home Economics
- Industrial Arts
- Italian
- Journalism
- Mathematics
- Music
- Physical Education (Men)
- Physical Education (Women)
- Physics
- Political Science
- Psychology
- Russian
- Spanish
- Speech and Drama
- Specialization in
  - (a) Librarianship
  - (b) Teaching of Exceptional Children

STANDARD TEACHING CREDENTIAL—JUNIOR COLLEGE

GENERAL REQUIREMENTS

To be recommended by San Diego State College for the Standard Teaching Credential with specialization in junior college teaching, an applicant shall have completed successfully a program including the following requirements:

I. A master's degree, doctor's degree, or other postgraduate degree approved by the State Board of Education requiring not less than five years, or its equivalent, of college or university education secured in an approved institution. The degree shall be in a subject matter area, except that a master's degree in library science shall be accepted if the applicant has substituted for the minor specialized preparation in librarianship.

II. Forty-five semester hours in general education as outlined in the preceding section in General Education.

III. One of the majors specified for junior college teaching.

IV. One of the minors specified for junior college teaching. (When the applicant's major is not in an academic subject matter area, 12 semester hours of the minor must be in upper division or graduate courses in a single academic subject.)

V. The following professional courses in education: Education 201, 223, 251, and 316 (10 units).

SPECIALIZED PREPARATION WHICH MAY BE SUBSTITUTED FOR A MINOR

APPLICABLE TO STANDARD TEACHING CREDENTIALS WITH SPECIALIZATION IN ELEMENTARY, SECONDARY, OR JUNIOR COLLEGE TEACHING

SCHOOL LIBRARIAN

Specialized preparation to serve as a school librarian may be substituted for the minor in the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following: Library Science 110, 118, 119, 136, 138, 184, 231, 232; Education 183 (4 units); two courses selected from Library Science 225, 226, 227.

EXCEPTIONAL CHILDREN: AREA OF THE MENTALLY RETARDED

The program of specialized preparation to serve as a Teacher of Exceptional Children: Area of the Mentally Retarded, may be substituted for a minor for the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following: Education 167, 168 or 169, 171, 172, 173, 182, Psychology 109, Speech Arts 170, and two units of electives with approval of the adviser. (26 units.)

EXCEPTIONAL CHILDREN: AREA OF SPEECH AND HEARING HANDICAPPED

The program of specialized preparation to serve as a Teacher of Exceptional Children: Area of Speech and Hearing Handicapped, may be substituted for a minor for the Standard Teaching Credential in either elementary, secondary, or junior college teaching, when the major is in an academic subject matter area.

Requirements consist of the following:

Lower Division: Speech Arts 70. (3 units.)

Upper Division: Speech Arts 100, 170, 171A, 171B, 172, 173, 174, 176, 177, 178, 179A, 179B (34 units); Speech Arts 180A, 180B (6 units); and Education 167 and 184. (7 units.)

STANDARD DESIGNATED SERVICES CREDENTIAL

PUPIL PERSONNEL SERVICES

To be recommended by San Diego State College for the Standard Designated Services Credential with a specialization in Pupil Personnel Services, an applicant shall have completed successfully a program including the following requirements:

I. A master's degree in an academic subject matter area or in counseling or psychology *and* course work covering certain specified areas. The course work requirements may be satisfied by completion of the following courses or their equivalents: Education 167, 225A, 225B, 226, 231, 232, 233, 234, 239, and 332.

II. Sixty semester hours of postgraduate work in the area of pupil personnel services. An applicant who has had three years of successful full-time teaching experience may have the option of substituting up to thirty units of postgraduate work in areas other than pupil personnel services.

III. Four hundred and eighty clock hours of supervised field experience. An applicant who has had three years of successful full-time teaching experience may substitute this experience for one half of this requirement. An applicant who has had successful school experience as a full-time pupil personnel worker may substitute this experience at the rate of one year for one half of this requirement. This requirements may be satisfied by completion of Education 331 or equivalent.

Note: All applicants for this credential must complete I, II, and III as outlined above. Applicants who wish to obtain a credential which includes authorization to perform the services of school psychometrist must complete additional course work covering certain specified areas; applicants who wish to obtain a credential which includes authorization to perform the services of school psychologist (a) must complete requirements for the psychometrist authorization, (b) may *not* substitute course work in other areas in satisfying the sixty unit requirement specified under II above, and (c) must complete certain additional course work. Applicants desiring these special authorizations should consult the Coordinator of Guidance Studies for further information.

SPECIALIZATION IN HEALTH

To be recommended by San Diego State College for the Standard Designated Services Credential with a specialization in Health, authorizing service as a school nurse, an applicant shall have completed successfully a program including the following requirements:

I. Possession of a valid certificate of public health nursing issued by the California State Board of Public Health. (Waived for applications filed prior to September 1, 1967.)

II. Five years of college or university education, including a baccalaureate degree.

III. The following professional courses: Education 111 or 113, 167, 115 or 230; Health Education 152, 153; Nursing 36, X-160. (20 units.)

IV. One hundred and eighty clock hours of supervised field experience, or the authorized equivalent in terms of actual experience. (For details, see the Coordinator of the Health and Development program.)

STANDARD SUPERVISION CREDENTIAL

The Standard Supervision Credential authorizes the holder to serve as a supervisor, consultant, coordinator, or in an equivalent supervisorial or intermediate administrative position at all grade levels in all areas that his credential (basic) authorizes him to teach or serve. However, to serve as a *principal*, his college or university preparation must include a major in an academic subject area, or a diversified major as provided for by law.

Note: By State interpretation, department heads do not need to possess the Standard Supervision Credential.

To be recommended by San Diego State College for the Standard Supervision Credential, an applicant shall have completed successfully a program including the following requirements:

I. Six years of college or university education including:

(a) Two years of acceptable postgraduate education in an approved institution.

(b) A master's degree requiring not less than five years of education earned in an approved institution. If the degree is not in an academic subject matter area, the two years of postgraduate education shall include twelve semester hours of course work in an academic subject matter area or areas.

II. The possession of a valid basic credential.

III. Five years of successful full-time classroom teaching experience.

IV. Admission to the program for school supervision and administration. (For details, see the Coordinator of Administrative Studies.)

V. The following professional courses:

(a) For the elementary school concentration, Standard Supervision Credential: Education 260, 261, 262, 263, 264A-B-C, and 266A-B-C.

(b) For the secondary school concentration, Standard Supervision Credential: Education 260, 261, 262, 263, 265A-B-C, and 267A-B-C.

STANDARD ADMINISTRATION CREDENTIAL

The Standard Administration Credential is required for service as superintendent or assistant, associate, or deputy superintendent.

The rules and regulations of the State Board of Education prescribe either (a) a doctorate or (b) an academic master's degree.

At the present time, San Diego State College is not recommending for this credential. Courses required for this credential will be offered, for the present at least, on an irregular basis as demand for them occurs.

BACHELOR OF EDUCATION DEGREE

B.E. DEGREE WITH THE GENERAL ELEMENTARY OR KINDERGARTEN-PRIMARY CREDENTIAL

Provisions for the granting of the bachelor of education degree are made in the California Administrative Code, Chapter 5, Section 40502. In addition to the outline below, the student must complete the graduation requirements listed in the section of this catalog on Graduation Requirements.

PURPOSE OF THE DEGREE

The purpose of this degree is to increase the professional competence of the individual as an elementary teacher in the California public schools. Through the curriculum provided, the applicant is guided into those learning experiences which best meets his cultural and professional needs on the basis of his previous preparation and of the services he is to render.

ELIGIBILITY FOR CANDIDACY

To be eligible to enter the program for this degree at San Diego State College the applicant must obtain full admission to the college, be admitted to the teacher education program of the college, must have completed a minimum of 60 semester units of standard college work acceptable toward the degree, and must hold a California provisional kindergarten-primary or provisional general elementary credential.

RESIDENCE REQUIREMENTS

A minimum of 24 semester units shall be earned in course work at San Diego State College (exclusive of credit-by-examination). Twelve of the 24 units must be in residence courses and must be secured after the candidate has earned at least 90 semester units.

REQUIREMENTS FOR THE DEGREE

The candidate must complete a four-year college course of 124 semester units as defined by the college, must meet the grade requirements established by the college for a bachelor's degree and credential, and must include in his program the following requirements:

(1) General education .... 45 units

Courses in general education must be distributed as follows:

(a) Social sciences 9

Shall include required instruction in American history, institutions and ideals; U. S. Constitution; and California state and local governments; and courses selected from the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.

(b) Natural sciences 9

Shall include the fields of astronomy, biology, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.

(c) Literature, philosophy or the arts Courses in fine and practical arts shall not exceed 3 of these 6 units.	6
(d) Health and physical education	2
(e) Oral and written expression	3
(f) Psychology	2
(g) Additional units in general education May be selected in whole or in part from the foregoing six general areas or may include courses in family life education or mathematics or not more than 6 units in foreign language. At least one course in general education must include instruction in fire prevention.	14

(2) Teaching background, minimum — 15 units

In addition to the 45 semester units required in general education, the teaching background in subject fields shall be selected according to the needs of the applicant, as prescribed by the teacher education department, with not less than 2 semester units in each of at least four of the following fields:

(a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.
(b) English and speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.
(c) Physical education, health, and hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.
(d) Mathematics.
(e) Music.
(f) Social science, including geography.
(g) Natural science.

(3) Major in elementary education — 24 units

Shall include courses from each of the following areas:

(a) General elementary school methods or methods of teaching basic elementary school subjects.
(b) Principles of elementary education or elementary school curriculum.
(c) Child psychology or child growth and development.
(d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.

(4) Credit for teaching experience — 8 units

A maximum of 8 semester units may be allowed for directed teaching and/or teaching experience on the elementary school level. Credit for teaching experience may be allowed at the rate of four units for one year of verified successful teaching experience.

(5) Additional units required — 32 units

Courses to complete the 124 units required for the degree shall be selected from those offerings of the college that best serve the cultural and professional needs of the candidate.

Total — 124 units

CREDIT-BY-EXAMINATION

A maximum of 30 units may be secured by examination in subjects included in the fields of study mentioned above. Students requesting credit-by-examination must comply with the provisions of the college established for this purpose. Refer to the section of this catalog on General Regulations, Credit-by-Examination.

BACHELOR OF VOCATIONAL EDUCATION DEGREE

ELIGIBILITY

The purpose of this degree is to promote the professional advancement of the vocational teachers in California. Eligible candidates for this degree shall be limited to those vocational teachers who meet the requirements established in the California Administrative Code, Chapter 5, Section 40503, and who are recommended by the Board of Examiners for Vocational Teachers.

MAJOR

The major in vocational arts consists of at least 24 upper division units to include the credits recommended by the Board of Examiners for Vocational Teachers for the applicant's occupational, managerial, and supervisory experience, and additional courses, if needed, to complete the minimum of 24 upper division units, to be selected with approval of the administrative dean of the School of Education.

The professional courses in teacher education completed by the applicant may be used toward electives.

GRADUATION REQUIREMENTS

Graduation requirements for this degree are the same as those for the A.B. degree in applied arts and sciences. Refer to the section of this catalog on Graduation Requirements for more complete information. Further information on this degree may be obtained from the administrative dean of the School of Education.

SCHOOL OF
ENGINEERING

ACCREDITATION

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering, is accredited by the Engineers' Council for Professional Development.

COURSES IN ENGINEERING

The School of Engineering offers courses at the undergraduate and graduate level. These individual courses are described in the section of this catalog on Announcement of Courses. At the undergraduate level, the School prescribes certain patterns of its courses, combined with those of other academic divisions of the college, as a program of 132 semester units leading to the degree, Bachelor of Science in Engineering. This program is described in detail below. At the graduate level, the School offers the Master of Science degree in specific major fields of engineering.

GRADUATE PROGRAM

The Master of Science degree is offered in aerospace, civil, electrical, and mechanical engineering. For further information, refer to the Graduate Bulletin and to the section in this catalog on the Graduate Division.

UNDERGRADUATE PROGRAM

The objective of the engineering program at San Diego State College is to provide the intellectual and physical environment best calculated to encourage students to develop their capacities toward a successful career in the profession of engineering. The graduate of this program is able to assume personal responsibility for the development and application of engineering knowledge with wisdom and judgment for the benefit of mankind. He is qualified to take the Engineer-in-Training examination as a first step to professional registration, to enter industry at the junior engineer level, or to continue his formal education at the graduate level. Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis upon the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the socio-humanistic facets of our civilization, because the engineering graduate must expect to find his best expression as a leader of men, conscious of the social and economic implications of his decisions.

Although the profession of engineering presents in practice a variety of specialties, the undergraduate student confines his attention during the first two years of the four-year program to a common pattern of course work in fundamentals. During his junior and senior years he may give outlet to his interest in a broad field of engineering by electing a total of 31 units of course work in aerospace, civil, electrical and electronic, or mechanical engineering. Even here, during this upper division work, the student is involved with his fellows in the study of a common core of the engineering sciences; these courses, together with those elected in a specialty field, are taught with an emphasis upon universal application and cross-fertilization of thought.

High School Preparation

The program of 132 semester units prescribed by the School of Engineering for the bachelor of science degree presumes that the entering student brings a high school preparation which includes physics, chemistry, geometry, trigonometry, two years of algebra, and mechanical drawing. Some remedial courses in these areas may be selected in the college, although delay in graduation usually results. Students with deficiencies are urged to consider enrolling in the Summer Sessions. Placement examinations are specifically required in mathematics and in drawing, in addition to the qualifying examinations taken by all applicants for admission as freshmen to the college.

ENGINEERING APTITUDE TEST

An Engineering-Physical Science Aptitude Test is given to all entering freshmen students during freshman orientation week. Students admitted to the college with advanced standing may file a transcript of previous college work with the dean of the School of Engineering in lieu of taking the aptitude test.

REQUIREMENTS FOR THE B.S. DEGREE IN ENGINEERING

Graduation Requirements

1. A minimum of 132 semester units for the B.S. degree in engineering.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units.
5. A major in engineering as prescribed by the School.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.
10. Application for graduation.

MAJOR IN ENGINEERING

The major in engineering consists of a pattern of prescribed upper division courses totaling 55 units, to include the requirements for all students and the requirements in the student's selected field of specialization. Courses in the major are in addition to 45 units of general education. A minor is not required. (For additional information on general education and requirements for the degree, refer to the section of this catalog on Graduation Requirements.)

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the School. These courses may be counted in general education if applicable.

MINOR IN ENGINEERING

A minor in engineering is available to students in other academic divisions of the college. The minor consists of from 15 to 22 units in engineering, nine units of which must be in upper division courses. The courses should follow a logical sequence and must be approved by the dean of the School of Engineering.

OUTLINE OF REQUIREMENTS

The program of study for the first two years is the same for all students in the School of Engineering. The recommended pattern is shown below. Course descriptions and prerequisites are given in the section of this catalog on Announcement of Courses.

LOWER DIVISION REQUIREMENTS

Freshman Year

Fall semester	*Units*	*Spring semester*	*Units*
Chem. 1A, General	5	Chem. 1E, Chem. for Engrs.	3
Math. 50, Anal. Geom. and Calc.	5	Math. 51, Diff. and Integ. Calc.	4
Engr. 20, Engr. Graphics	2	Phys. 4A, Principles	4
Engl. 1A, Comp.	3	Engr. 25, Engr. Materials	3
P.E. Activity	½	Sp. Arts 3 or Health Ed. 21	2
		P.E. Activity	½
	15½		16½

Sophomore Year

Math. 52, Diff. and Integ. Calc.	4	Phys. 4C, Principles	4
Phys. 4B, Principles	4	Engr. 40, Engr. Prob. Anal. I	1
Engr. 30, Engr. Meas. Anal.	2	Engr. 50B, Engr. Mech. II	3
Engr. 50A, Engr. Mech. I	3	Engr. 60, Electr. Circuits	3
American Institutions	3	American Institutions	3
P.E. Activity	½	Sp. Arts 3 or Health Ed. 21	2
		P.E. Activity	½
	16½		16½

UPPER DIVISION REQUIREMENTS

The program of study for the last two years embraces the fundamental engineering sciences and their application to specific problems in selected fields of engineering practice, together with an opportunity for the student to approach an intellectual maturity in social, economic, ethic, and aesthetic thought.

The student must complete (1) the upper division requirements for all students; (2) the requirements of the selected field of specialization in accordance with an approved master plan filed during the first semester of the junior year; and (3) the remaining units of general education.

Recommended patterns in the four fields of specialization are shown below. Course descriptions and prerequisites are given in the section of this catalog on Courses and Curricula.

AEROSPACE ENGINEERING

All students in the Aerospace Engineering option pursue a common program of aerospace engineering fundamentals; however, some elective opportunity is provided through a choice of upper division courses in engineering, mathematics, or physics, subject to approval of the adviser and the department chairman. The recommended pattern for upper division aerospace engineering courses follows:

Junior Year

Fall semester	*Units*	*Spring semester*	*Units*
Engr. 100B, Electr. Mach.	3	Engr. 115, Fluid Mech.	4
Engr. 108, Thermodynamics	4	Engr. 151A, Aero. Struct. Anal. I	3
Engr. 116, Resist. of Materials	4	Engr. 153, Flight Mech.	3
Engr. 187A, Methods of Analysis, or Math 118A, Adv. Math. for Engrs.	3	Engr. 187B, Methods of Analysis, or Math 118B, Adv. Math. for Engrs.	3
‡Econ. 1A, Prin. of Econ.	3	‡Biol. 1, Ideas of Biol.	3
	17		16

Senior Year

Engr. 118, Rate Processes	3	Engr. 152, Propulsion Systems	3
Engr. 150, Aerodynamics	3	Engr. 190G or 190H, Engr. Appl.	3
Engr. 151B, Aero. Struct. Anal. II	3	†Electives within major	5
Engr. 154, Exper. Aerodyn.	2	‡Psych. 1, General	3
†Electives within major	3	‡Lit. or Philosophy	3
‡Lit. or Philosophy	3		17
	17		

CIVIL ENGINEERING

All students in the Civil Engineering option pursue a common program of civil engineering fundamentals; however, some elective opportunity is provided through a choice of upper division engineering courses, subject to approval of the adviser and the department chairman. The recommended pattern for upper division Civil Engineering courses follows:

Junior Year

Fall semester	*Units*	*Spring semester*	*Units*
Engr. 108, Thermodynamics	4	Engr. 100B, Electr. Mach.	3
Engr. 116, Resist. of Materials	4	Engr. 115, Fluid Mech.	4
Engr. 187A, Methods of Analysis, or Math 118A, Adv. Math. for Engrs.	3	Engr. 120A, Struc. Anal. I	4
‡Biol. 1, Ideas of Biol.	3	Engr. 128A, Surveying	3
‡Econ. 1A, Prin. of Econ.	3	‡Psych. 1, General	3
	17		17

Senior Year

Engr. 122, Soil Mech.	3	Engr. 121, Reinf. Concrete	3
Engr. 123, Appl. Hydraul.	3	Engr. 190A, Structural Design	2
†Electives within major	7	Engr. 118, Rate Processes	3
‡Lit. or Philosophy	3	†Electives within major	3
	16	‡Lit. or philosophy	3
		Geol. 53, Gen. Geol. for Engrs.	1
			17

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† Approved as part of student's master plan by the department chairman.
‡ Recommended general education course.

ELECTRICAL AND ELECTRONIC ENGINEERING

All students with the option in Electrical-Electronic Engineering include in their program a sequence of courses designed to develop an understanding of the basic principles, laws, and methodology of Electrical-Electronic Engineering. The student, through the proper selection of electives, has the opportunity to develop proficiency in his area of special interest. Typical areas include communications, control systems, electromagnetic radiation and propagation, digital systems and solid state electronics. The recommended pattern of courses for upper division electrical-electronic engineering majors is tabulated below.

Junior Year

Fall semester	*Units*	*Spring semester*	*Units*
Engr. 100B, Electr. Mach.	3	Engr. 108, Electr. Mach.	4
Engr. 101, Appl. Electronics	2	Engr. 132, Linear Networks	3
Engr. 130, Network Analysis	4	Engr. 134A, Electr. Circuits	3
†Elective within major	1	Engr. 135A, Electronics Lab.	1
Math. 118A, Math. for Engrs. or Engr. 187A, Methods of Analysis	3	*Engr. 100C, Electr. Mach. or Elective within major	3
‡Econ. 1A, Prin. of Econ.	3	‡Psych. 1, General	3
	16		17

Senior Year

*Engr. 100C, Electr. Mach. or elective	3	Engr. 118, Rate Processes	3
Engr. 115, Fluid Mech.	4	†Electives within major	8
Engr. 116, Resist. of Materials	4	‡Lit. or Phil.	3
†Elective within major	3	‡Biol. 1, General	3
‡Lit. or Phil.	3		
	17		17

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* 100C is a required course.
† Approved as part of student's master plan by the department chairman.
‡ Recommended general education course.

MECHANICAL ENGINEERING

All students in the Department of Mechanical Engineering follow a common program of mechanical engineering fundamentals. Opportunity to puruse areas of interest is provided through the choice of technical electives. This opportunity is afforded in the general areas of design and energy conversion. The recommended pattern for required upper division courses in mechanical engineering is as follows:

Junior Year

Fall semester	*Units*	*Spring semester*	*Units*
Engr. 106, Mfg. Processes	2	Engr. 109A, Metallic Mat.	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Materials	4	Engr. 146A, Mach. Design	3
Engr. 145, Mech. of Mach.	4	Engr. 148, Engr. Thermo.	4
Engr. 187A, Methods of Analysis or Math. 118A, Adv. Math. for Engrs.	3	General Education	3
	17		17

Senior Year

Engr. 118, Rate Processes	3	Engr. 100B, Elect. Mech.	3
Engr. 190C, Engr. Applic.	2	Engr. 190D, Engr. Applic.	2
†Electives within major	6	†Electives within major	6
General Education	6	General Education	6
	17		17

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† Approved as part of student's master plan by the department chairman.

SCHOOL OF
SOCIAL WORK

The School of Social Work offers a two-year program of professional education at the graduate level leading to the Master of Social Work degree. This program is accredited by the Commission on Accreditation of the Council on Social Work Education.

The objectives of the program are to equip the student with the essential knowledge, philosophy, and basic skills for his responsible entry into the profession of social work.

A description of the program and requirements for the Master of Social Work degree will be found in the Graduate Bulletin. Information on requirements for admission to the college and to the Graduate Division is carried in the section of this catalog on the Graduate Division. Course descriptions and a list of the faculty of the School of Social Work appear in the section of the catalog on Announcement of Courses, under the title: Social Work.

The School also offers an undergraduate major in social welfare which is described in this catalog under the title: Social Welfare.

Further information may be obtained by writing to the Dean of the School of Social Work, San Diego State College.

NONDEGREE CURRICULA

PREPROFESSIONAL PROGRAMS
AFROTC PROGRAM

PREPROFESSIONAL PROGRAMS

PROGRAMS AVAILABLE

Preprofessional curricula, which usually require three or four years of collegiate work, are offered. Curricula outlines of preprofessional study, which are presented on the following pages, meet the typical requirements for admission to professional schools. Students expecting to complete their professional training at other institutions should modify the suggested outlines of study to meet the requirements of the professional schools of their choice. Curricular outlines are presented for predental, prelegal, and premedical programs. Students planning to enter other professional fields, such as agriculture, forestry, optometry, pharmacy, veterinary science, may obtain assistance from faculty advisers in arranging appropriate preprofessional courses of study.

PREDENTAL CURRICULUM

Candidates for a degree in dentistry should ascertain the entrance requirements of the dental college to which they expect to transfer and should make changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college.

The curriculum for dental hygiene is essentially the same as for predentistry.

Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other.

In high school, students should include the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, mechanical drawing, and three years in one foreign language if required by the college to which a student expects to transfer.

Many dental schools request that letters of recommendation for applicants be prepared by a predental council rather than by individual professors. Such a council exists on this campus and all western dental schools have been so informed. In order to obtain letters from the council, it is essential that each applicant provide the council with certain information. Obtain the form and instructions from the office of the Division of Life Sciences. This form must be submitted to the Life Sciences office by April 1 of the year during which application is being made.

RECOMMENDED COURSE OF STUDY FOR PREDENTAL CURRICULUM

Course of Study for Predental Curriculum. Freshman year, physical education activities, Health Education 21, Speech Arts 3, English 1A, English 2 or other literature course, Mathematics 3 and 4, or equivalents, Chemistry 1A-1B, Biology 1 and 2; sophomore year, physical education activities, Psychology 1, Chemistry 4 or 5, and 12, Physics 2A-2B and 3A-3B, Zoology 60, Biology 15, social science including courses in American history, institutions and ideals; U. S. Constitution; and California state and local government.

The following courses for a third year in preparation for dentistry are suggested: Chemistry 112, Zoology 100, Art 119A, Psychology 11, 106, and additional courses in general education.

PRELEGAL CURRICULUM

The following curriculum is designed to meet the requirements of standard American schools of law for a broad and liberal education, while at the same time providing desirable flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the general major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

RECOMMENDED COURSE OF STUDY FOR PRELEGAL CURRICULUM

Lower division. Business Administration 1A-1B, Economics 1A-1B, Political Science 1 and 2, and a year course in history. *Upper division:* In the junior and senior years the student will plan his course with the counsel of his adviser in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs.

Recommended. Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 139A-139B.

Beyond the courses taken in the fields of concentration, upper division electives in English, philosophy, psychology, sociology, and speech arts are recommended. A mastery of English expression is essential. The approval of a prelegal adviser is required for all master plans. If the special major pattern of concentration is chosen, a copy of the master plan is to be filed with the Evaluations Office.

PREMEDICAL CURRICULUM

The completion of entrance requirements for admission to medical colleges requires three years of undergraduate study. However, four years of undergraduate study is usually completed before admission. The premedical student is strongly advised to select a major in a department leading toward an A.B. degree in liberal arts and sciences. This is most readily accomplished by majoring in biology, chemistry, or zoology, although other departmental majors are acceptable. Specific requirements for these majors are described for each department.

High school students planning to enter medicine should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, and two or three years of German or French.

RECOMMENDED COURSE OF STUDY FOR PREMEDICAL CURRICULUM

The following is a list of courses which will satisfy the entrance requirements of most medical colleges. These courses should be included in the program of the premedical student regardless of his selected major. The entrance requirements for medical colleges differ somewhat and specific requirements of the medical school to which the student wishes to apply should be obtained directly from that medical college.

Courses to be included in the program during the first two undergraduate years: Biology 1 and 2; Chemistry 1A–1B, and 4 or 5; six semester units of English, to include English 1A; two years of a modern foreign language (German or French); Physics 2A, 2B, 3A, 3B; Zoology 50 or 60.

Courses to be included in the undergraduate program during the third and fourth years: Chemistry 12 and 112; Zoology 100 and 106.

The following courses are strongly recommended for inclusion in the undergraduate program: Biology 15, 101, Biology 155 or Zoology 164; Mathematics 21 and 22 or equivalent.

PREPARATION FOR OTHER PROFESSIONS

Programs leading to professional study in agriculture, architecture, forestry, optometry, pharmacy, theology, veterinary science, and other areas, may be planned for a student who may wish to take some undergraduate work in liberal arts at this college. Since these professional areas frequently require a compete four-year course of study at the institution granting the degree, preprofessional programs are not provided at San Diego State. If the student wishes to take work at this college, he is advised to consult the catalog of the college to which he expects to transfer to determine requirements before arranging his program. Faculty advisers will assist the student in planning his course of study.

AFROTC PROGRAM

AIR FORCE RESERVE OFFICERS' TRAINING CORPS

The purpose of AFROTC on college campuses is to prepare selected students for duty as Air Force officers. The Professional Officer Course provides education that will develop skills and attitudes essential to the Air Force officer. Upon completion of the AFROTC program and all requirements for a baccalaureate degree, cadets are commissioned second lieutenants in the Air Force and serve a minimum of four years active duty.

The Division of Aerospace Studies offers a two-year Air Force ROTC curriculum designed to develop officers who have broad understanding and high-growth potential. Cadets participate in dialogues, problem solving, and other planning activities designed to develop leaders and managers. All course work is done on campus with the exception of the Field Training Unit conducted at an active Air Force base and the Flying Instruction Program conducted at a local civilian flying school. Summer training is required of all students, other than veterans, prior to enrollment in on-campus courses.

Graduates who are qualified may apply for pilot or navigator training immediately upon graduation. Other graduates go on active duty in a specialty consistent with their academic major and existing Air Force needs. Graduates may request a delay from entry on active duty to continue their education in graduate programs. Distinguished graduates may apply for Air Force sponsored graduate study after entry on active duty.

APPLICATION FOR AFROTC

Any student at San Diego State College, or in any other college, who plans to attend SDSC for at least two years and earn either an undergraduate degree or participate in a post-graduate or graduate program, may take the Air Force Officer Qualifying Test and the physical examination during the year preceding entry into the program.

When selected, applicants attend a six-weeks field training course at an Air Force base in the summer prior to their last two years of college. No further summer training is required. (Note: Veterans who are granted credit for prior military service may enter the program as juniors and attend a four-week field training between their junior and senior year.) Field training emphasizes military orientation for the junior officer and aircraft and aircrew familiarization. Cadets receive physical training and participate in competitive sports. They are trained in the use of weapons, drill and ceremonies, and observe selected Air Force units perform everyday operations of the Air Force.

FLIGHT INSTRUCTION

The Flight Instruction Program (FIP) is offered to qualified senior cadets who have elected to enter pilot training when reporting for active duty. The cost of the flight training is paid by the Air Force. Instruction is divided between class work taught on the campus and flying training conducted by a civilian contractor in the area.

PAY

Cadet retainer pay of $50 per month is given for twenty months of the AFROTC program. Cadets receive approximately $135 during the Field Training Unit and are reimbursed for the cost of travel to and from the unit.

MINOR IN AEROSPACE STUDIES

The minor in aerospace studies consists of 15 to 22 units, 12 units of which must be in upper division courses. Previous military experience may qualify veterans for entry into upper division work.

COURSES

Courses in aerospace studies are described in the section of this catalog on Courses and Curricula.

COURSES AND CURRICULA

COURSES AND CURRICULA

COURSE NUMBERING

Courses numbered from 1 to 99 are lower division (freshman or sophomore) courses; those numbered 100 to 199 are upper division (junior or senior) courses; those numbered 200 to 299 are graduate courses; those numbered 300 to 399 are professional education courses to be taken at the graduate level.

THE UNIT OR CREDIT HOUR

In the listing of courses that follow, figures in parentheses indicate the unit value of the course. One unit or credit hour represents 50 minutes of recitation or lecture, together with the required preparation, or three hours of laboratory work or two hours of activities, each week for a semester of 18 weeks.

PREREQUISITES FOR UNDERGRADUATE COURSES

Prerequisites for each course are stated in the course description. A student must not enroll in a course for which he is not eligible.

PREREQUISITES FOR GRADUATE COURSES

Graduate level (200-numbered) courses require, as a general prerequisite, competence in the specific field as indicated by a substantial amount of upper division study in the field or in a closely related field. Unless otherwise specified in the course description, graduate level courses are open to classified graduate students with the permission of the instructor. Unclassified graduate students must obtain the permission of the instructor and the Dean of Graduate Studies before they may enroll in a graduate level course.

SEMESTER IN WHICH COURSES ARE OFFERED

In the listing of courses that follows, Roman numeral I indicates a course offered in the fall semester. Roman numeral II indicates a course offered in the spring semester.

Following the course title are designations of credit and the semester in which course is offered. Examples:

(3) I.......................Three units. Offered in fall semester.

(3) II.......................Three units. Offered in spring semester.

(3-3).......................Three units each semester. Year course normally beginning in the fall semester.

(3–3) I, II.......................Three units each semester. Year course beginning either semester.

X–.......................An "X" preceding a course number indicates a course offered in extension only.

Although the college fully expects to carry out the arrangements planned in the list of courses, it reserves the right to make changes. Classes in which the enrollment does not come up to the minimum number set by the Trustees of the State Colleges may not be offered or may be postponed.

AEROSPACE STUDIES

IN THE DIVISION OF AEROSPACE STUDIES

Faculty

Professor: Smith, W. R. (Chairman)
Assistant Professors: O'Brien, Rothman

Offered by the Division of Aerospace Studies

ROTC curriculum. (Described in the section on Preprofessional and Nondegree Curricula.)

Minor in Aerospace Studies.
Field Training.
Flight instruction.

AEROSPACE STUDIES MINOR

The minor in aerospace studies consists of 15 to 22 units, 12 units of which must be in upper division courses. Previous military experience may qualify veterans for entry into upper division work.

UPPER DIVISION COURSES

131A-131B. Growth and Development of Aerospace Power (3-3)

Three lectures and one hour of leadership laboratory.

First semester: The nature of war; development of air power; and Air Force doctrine.

Second semester: Astronautics and space operations; United States space programs.

141A-141B. The Professional Officer (3-3)

Three lectures and one hour of leadership laboratory.

Prerequisites: Air Science 131A and 131B.

First semester: A study of the professional officer; the Military Justice System; leadership theory and practice.

Second semester: Management principles and functions; problem solving; briefing for commissioned service.

151. Flight Instruction (2) I

Available only to qualified senior AFROTC students.

Ground school is provided by the Aerospace Studies Division. Flight instruction is given by a contracted civilian flying school. Students may qualify for the FAA private pilot certificate.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of Aerospace Studies Division chairman.

EXTENSION COURSE

X-133. Field Training Unit (3)

Required for advanced cadets; military orientation and flight familiarization. Credit granted through the Extension Division on basis of individual student application with approval of the Aerospace Studies Division Chairman.

ANTHROPOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Ezell (Chairman), Rogers, S.

Associate Professors: Anderson, A. J., Goldkind

Assistant Professors: Kurtz, Lewis, H., Price, Provencher, Rohrl, Shutler, M., Shutler, R., Snyder, Staniford, Watson, L., Whitney

Offered by the Department of Anthropology

Master of Arts degree with a major in anthropology. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in anthropology with the A.B. degree in liberal arts and sciences.

Minor in anthropology.

ANTHROPOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Preparation for the major. Anthropology 1A, 1B, and 1C. (9 units.)

Major. A minimum of 24 upper division units to include three units selected from Anthropology 102 or Biology 158; three units selected from 103, 170 or 174; six units selected from 152, 162, 171, 175, 177, or 178; six units selected from 150, 154, 156, 165, or 167; three units from 120, 122, or English 196; three units of Anthropology 197. (Anthropology 197 should be taken during senior year; 100A or 100B may not be counted in the upper division requirements for graduation.)

ANTHROPOLOGY MINOR

The minor in anthropology consists of from 15 to 22 units in anthropology, nine units of which must be in upper division courses (except Anthropology 100A–100B).

LOWER DIVISION COURSES

1A. Human Origins (3) I, II

Man's place in nature; fossil evidences of early man; theories of human development; racial variability. Not open to students with credit in Anthropology 100A.

1B. Culture Origins (3) I, II

May be taken before Anthropology 1A.

Prehistoric cultures of Europe and the Middle East; archaeological techniques; basic inventions and cultural innovations; language and culture. Not open to students with credit in Anthropology 100B.

1C. Primitive Societies (3) I, II

May be taken before Anthropology 1A or 1B.

Man's relationship to his environment; types of preliterate society; systems of family organization, government, and religion.

UPPER DIVISION COURSES

100A-100B. Principles of Anthropology (3-3)

Human evolution as a biocultural process; man's relation to other forms of life and to his habitat; the growth of cultures; the interplay between biology, culture, and society. Not open to students with credit in Anthropology 1A and 1B. Anthropology 100A-100B may not be used to fulfill minimal upper division requirements in the anthropology major or minor or the special major.

101. Human Paleontology (3) II

Prerequisite: Anthropology 1A or 100A.

Comparative anatomy of fossil man and other primates; evolutionary relationships and cultural associations.

102. Physical Anthropology (3) I

Prerequisite: Anthropology 1A or 100A.

A review of primate comparative anatomy and human palaeontology. Physical measurement of the living subject and skeletal specimens. The statistical treatment of data in physical anthropology. Applications of physical anthropology in industry and medico-legal problems.

103. Principles of Archaeology (3) II

Prerequisite: Anthropology 1B or 100B.

The historic background and basic techniques of archaeological excavation. Methods of site excavation with particular emphasis on California and the Southwest. Principles of culture dynamics utilized in archaeological interpretation.

115. Primatology (3) I

Prerequisite: Anthropology 1A or 100A.

Description, taxonomy, and comparative anatomy of the anthropoid apes, monkeys, and lesser primates. Primate behavior as a basis for the reconstruction of prehistoric human behavior. Extensive use of the primate collections of the San Diego Zoo.

120. Introduction to Anthropological Linguistics (3) I

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

An introduction to the structural nature of language. How languages differ, change, and influence each other. The language families of the world. The significance of language for human social life in a variety of cultures.

122. Language in Culture (3) II

A survey of the full range of anthropological interests in the study of language, and of linguistic interests in the socio-cultural context of language. Designed for students in language and other departments as well as in anthropology.

124. Descriptive Linguistics (3) II

Prerequisite: Anthropology 120.

Principles and techniques of descriptive linguistics. Problems and methods in the phonetic transcription and analysis of unwritten, non-Indo-European languages. Emphasis on articulatory phonetics, field techniques, and work with informants.

149. Kinship and Social Organization (3) I

Prerequisite: Anthropology 1C or 100B.

Comparison of kinship systems and the structure of social relationships throughout the world. An examination of the methodological orientations and theories relating to social organization with primary emphasis on non-Western societies.

150. Ethnological Field Methods (3) I

Prerequisite: Anthropology 152.

An introduction to the problems and techniques of obtaining data in ethnological and social anthropological field work; preparation, gaining and maintaining rapport, evaluating data, participant-observation. A review of literature followed by work with informants.

Anthropology

152. World Ethnography (3) I, II
Prerequisite: Anthropology 1C or 100B.
The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies.

153. Primitive Religion (3) II
Prerequisite: Anthropology 1C or 100B.
Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

154. Social Anthropology (3) II
Prerequisite: Anthropology 152.
The development of social anthropology as a distinct subfield of cultural anthropology. Readings and analysis of functionalism as theory and methodology in the explanation of social and cultural processes.

155. Peasant Society and Culture (3) II
Prerequisite: Anthropology 1C or 100B.
Analysis of the social organization and culture of present-day small agricultural communities with special emphasis on changes brought about by modernization.

156. Cultural Change and Processes (3) I
Prerequisite: Anthropology 1C or 100B.
The individual and the culture pattern: The acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

157. Mesoamerican Ethnohistory (3) II
Prerequisite: Anthropology 1B or 1C or 100B.
Aboriginal pre- and post-Conquest civilization of Mexico with emphasis on the developments, changes, and characteristics of aboriginal, mestizo, and creole society in Colonial Mesoamerica; stress on appropriate texts and codices.

158. Economic Anthropology (3) II
Prerequisite: Anthropology 1C.
Social relationships and cultural values inherent in the economies of primitive and peasant societies. Cross-cultural comparisons made of various means by which goods and services are acquired and distributed in non-Western, non-market-industrial societies.

159. Cultural Ecology (3) I
Prerequisite: Anthropology 1C.
Examination and comparison of the relationships which exist between the natural environment and the socio-cultural processes in non-literate and peasant communities.

160. Primitive Technology (3) I
Prerequisite: Nine units of anthropology.
Techniques of tool manufacture, subsistence, shelter, clothing and arts and crafts of non-industrial peoples.

161. The California Indian (3) I
A survey of native California Indian culture with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

162. Cultures of South America (3) II
Prerequisite: Anthropology 1B or 1C or 100B.
Survey of Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Inca civilization, the effects of the Spanish conquest and its aftermath.

163. Contemporary Latin American Cultures (3) I

Prerequisite: Anthropology 1C.

A social anthropological approach to the structure and dynamics of contemporary conditions and problems, especially as revealed in studies of particular communities. Included are such topics as ethnic and regional differences within national societies, population change, social consequences of economic changes, changing stratification systems, values, institutional change.

164. Urban Anthropology (3) I

Prerequisite: Anthropology IC or 100B.

Cultural roles of urban centers and processes of urbanization in non-Western, non-industrial, societies of past and present. Urban influence on traditional peasant and primitive peoples of Africa, Asia, and Latin America.

165. Culture and Personality (3) I, II

Prerequisite: Anthropology 1C or 100B.

The relationship of individual personality to culture in a variety of cultures. A consideration of various theories and studies in the social and personality sciences.

166. Honors Course I, II (Credit to be arranged)

Refer to the Honors Program.

167. History of Anthropological Theory (3) II

Prerequisite: Anthropology 1A or 1B or 1C or 100A or 100B.

A review of the development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

168. Evaluative Procedures in Culture and Personality (3) II

Prerequisite: Anthropology 165.

Methods of eliciting and evaluating cross-cultural information about patterns of behavior. Such field methods as the interview and participant observation will be reviewed and evaluated.

169-S. Backgrounds of Mexican Civilization (3) Summer

Mexico's archaeological past and its bearing on historic and recent peoples and cultures. Conflicts between Aztec and Mayan cultures and western civilization. The relationship of Mexican civilization to other Latin American cultures.

170. Archaeology of North America (3) I

Prerequisite: Anthropology 1B or 100A.

Origin of the American Indian and survey of the main prehistoric cultures of the North American continent.

171. Ethnology of North America (3) II

Prerequisite: Anthropology 1C or 100B.

Description and analysis of native cultures and the role of environmental and historical factors in North America.

172A. Southwestern Prehistory (3) I

Prerequisite: Anthropology 1B or 100A.

Prehistoric Indian cultures in the American Southwest; ecological adaptations and outside cultural influences.

172B. Southwestern Ethnology (3) II

Prerequisite: Anthropology 1C or 100B.

Indian cultures of the American Southwest in historic times; ecological adaptations, responses to white contact, adaptations to modern American life.

173A. Archaeological Field Methods (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Anthropology 103.

Application of the methods and techniques of archaeology through excavation, laboratory analysis, and preparation of reports.

173B. Archaeological Field Methods (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Anthropology 173A.
Advanced projects in excavation and stabilization of ruins, archaeological surveys, laboratory analysis and preparation of reports.

174. Prehistoric Archaeology of Europe (3) II
Prerequisites: Anthropology 1A and 1B, or 100A and 100B.
A review of the Stone Age, Bronze Age, and Iron Age cultures of Europe, North Africa, and the Middle East. Industries, habitations, and art of peoples antecedent to recorded history. Methods of investigation used in reconstructing prehistoric civilizations.

175. Cultures of Southeast Asia (3) II
Prerequisite: Anthropology 1C or 100B.
Prehistory, races and cultures of Indonesia, Philippines and nearby mainland Southeast Asia. Includes both primitive and peasant societies and reviews them with respect to environmental, historical and social factors.

176. Early Near and Middle Eastern Civilizations (3) I
Prerequisite: Anthropology 1B.
Anthropological foundations of historic primary civilizations of the Near and Middle East in their early phases of development as revealed by archaeological and other sources.

177. Cultures of East Asia (3) I
Prerequisite: Anthropology 1C or 100B.
Peasant and primitive peoples of mainland and insular East Asia. A comparison of cultural traditions, social organization, and social trends in China, Japan, Okinawa, and Korea.

178. Cultures of Oceania (3) II
Prerequisites: Anthropology 1C or 100B.
The aboriginal cultures and people of Melanesia, Australia, Micronesia, and Polynesia in pre-historic, historic, and modern times.

179. Applied Anthropology (3) II
Prerequisites: Anthropology 154 and 156, and consent of instructor.
The application of anthropological concepts to the solution of practical problems of culture change in industry, corporate organization and community development.

180. Preclassic Cultures of Mesoamerica (3) II
Prerequisite: Anthropology 1B or 100B.
The development of civilization in Pre-Columbian Mexico and Central America antecedent to the Tolteca, Classic Maya, and related cultures. (Formerly entitled Preclassic Aboriginal Civilizations of Middle America.)

181. Classic Pre-Columbian Civilizations of Middle America (3) I
Prerequisite: Anthropology 1B or 100A.
Aboriginal Mexican and Central American civilizations through the Age of Exploration and Conquest. Aztecs, Mixtecs, Zapotecs, Mayas, and related cultures.

182. Post-Conquest Cultures of Middle America (3) II
Prerequisite: Anthropology 1C or 100B.
Aboriginal and mixed cultures of Mexico and Central America in Colonial and recent epochs. Aftermath of Conquest and exploitation.

183. Archaic Hellenic, Aegean, and Italian Cultures (3) II
Prerequisite: Anthropology 1B or 100A.
Anthropological foundations of primary civilizations of Greece, the Aegean, and Italy, in their prehistoric phases of development as revealed by archaeological and other sources.

197. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics in anthropology and preparation of reports on the results of the study.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3)
An intensive study in advanced anthropology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

222. Historical Linguistics (3) I
Prerequisites: Anthropology 120 and 124.
Principles and techniques of historical linguistics, with concentration on the dynamics of linguistic change, comparative linguistics, and historical reconstruction as applied to non-Indo-European languages.

233. Social Structure (3)
Prerequisite: 12 units of upper division credit in anthropology.
A structural and functional approach to the social organization of a wide range of cultures. An examination of theories and generalizations regarding the stability and integration of a wide variety of human societies.

255. Culture and Society in the Nahua Area (3)
Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
A course designed to permit concentrated studies of the area and those related to it, based on archaeology, aboriginal records, colonial accounts, and modern studies; and to permit various approaches to such studies.

256. Cultures and Societies in Southern Mesoamerica and Central America (3)
Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
Concentrated studies of ancient civilization in areas of higher development, based on archaeology, aboriginal records, Colonial accounts, and recent studies; and to permit various approaches to such studies.

257. Classical Nahuatl (3) I
Prerequisite: Anthropology 1B or 1C and 12 units of upper division credit in anthropology including Anthropology 157, or 180, or 181; reading knowledge of Spanish recommended.
Nahuatl language study and analysis for translation of 16th and 17th century texts; use of ancient and modern grammatical works and vocabularies; reading of manuscripts; relationship of the language to appropriate aspects of Nahua culture.

267. Contemporary Theory in Cultural Anthropology (3)
Prerequisite: 12 units of upper division credit in anthropology.
Contemporary theoretical developments in cultural anthropology: an examination of proposed conceptual frameworks, methodologies, hypotheses, and theories. An analysis of recent literature, with evaluation oriented toward significance for research.

298. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study directed toward the preparation of a paper upon a specific problem. Six units maximum credit.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ART

IN THE DIVISION OF THE FINE ARTS

Faculty

Emeritus: Andrews, Jackson, Ruocco

Professors: Bigelow, Dirks, Longenecker, Sorenson, Swiggett (Chairman), Tanzer, Wallace

Associate Professors: Fisch, Hopkins, Lingren

Assistant Professors: Baker, K., Baxter, Berg, Bowne, Covington, Higgins, Hunter, L., Miller, A., Orth, Rogers, J.

Instructors: Groover, Peterson, T.

Lecturer: Papworth

Offered by the Department

Master of Arts degree with a major in art; and a Master of Arts degree for teaching service with a concentration in art. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)
Major in art with the A.B. degree in liberal arts and sciences.
Major in art with the A.B. degree in applied arts and sciences.
Minor in art.
Teaching major in art, with specialization in both elementary and secondary teaching. Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences, requiring a concentration in art, are also offered. (See the section of this catalog on the School of Education.)
Teaching minor in art, with specialization in secondary teaching.

ART MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A major in art may be planned with an emphasis in studio arts or art history. A minor is not required with this major in art.

EMPHASIS IN STUDIO ARTS

Preparation for the major. Art A, B, 2A, 2B, 15A, 16A, 50A, 50B, 52A, 52B. (22 units.)

Major. A minimum of 27 upper division units to include Art 100A, 100B, 115A, 116A, 156, 190; Philosophy 141; and eleven units to be chosen in consultation with the adviser from the following: Art 106A, 106B, 112A, 112B, 116B, 117A-B-C-D, 120A, 120B, 153, 154, 155A, 155B, and 199.

EMPHASIS IN ART HISTORY

Preparation for the major. Art 50A, 50B, 51, 52A, 52B; Anthropology 1B; foreign language (French or German) or a reading knowledge of either language (12 units).

Major. A minimum of 24 units of art history to include: Art 153, 154, 155A, 155B, 156A, and 157 or 158; plus six units of electives to be chosen from the Anthropology, History, Art or Philosophy departments with consent of the department.

ART MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

The major in art may be planned with an emphasis on crafts, on graphic arts, on graphic communication, on environmental design, or on art education. The program with emphasis on crafts leads in the direction of industrial design, cabinet making, sculpture, weaving, textile design, ceramics, and jewelry design. The program with emphasis on graphic arts leads in the direction of such fields as illustration, portraiture, landscape painting, mural design, and fashion design. The program with emphasis on graphic communication leads in the direction of the professional goal of art direction, advertising design, fashion illustrating, or production illustration. The program with emphasis on environmental design leads in the direction of interior decoration. The program in art education prepares for teaching in elementary or secondary schools.

A minor is not required with this major.

EMPHASIS ON CRAFTS

Preparation for the major. Art 61 (3 units); six units to be selected from Art 7, 8, 13A, 17A, 70A, or 80A.

Major. A minimum of 24 upper division units to include 10 units to be selected from 106A, 111A, 113A, 117A, 119A, 156A, 161A, 170A, 180A. A minimum of four additional units to follow in sequence from one of the selected classes above; and 10 units of upper division art electives.

EMPHASIS ON GRAPHIC ARTS

Preparation for the major. Art A, B, 2A, 2B, 14A, 15A, 16A, 50A, 50B, and four units of art electives. (24 units.)

Major. A minimum of 24 upper division units to include Art 106A, 112A, 112B, 115A, 115B, 115C, 116A, 116B; and eight units of upper division art electives.

EMPHASIS ON GRAPHIC COMMUNICATION

Preparation for the major. Art A, B, 2A, 2B, 7, 14A, 14B, 15A, 16A, 50A, and 50B. (24 units.)

Major. A minimum of 24 upper division units to include Art 112A, 114A, 114B, 114C, 115A, 118A, 156, 193, 194A, 196A; and three units of art electives selected with approval of the adviser. Recommended electives: Art 106A, 111A, 112B, 115B, 116A, 116B, 194B; Business Administration 153.

EMPHASIS ON ENVIRONMENTAL DESIGN

Preparation for the major. Art A, B, 2A, 2B, 8, 13, 50A, 50B, 61, 95A, and 95B. (25 units.) Recommended: Art 14A.

Major. A minimum of 24 upper division units to include Art 133A, 133B, 135A, 135B, 156, 195A, 195B, 195C, 195D, and four units from the following: 111A, 113A, 117A, 119A, 161A, 170A, 180A, or 191.

EMPHASIS ON ART EDUCATION

(For students in Teacher Education)

This emphasis is available only to students who have been admitted to and continue in Teacher Education to time of graduation.

ELEMENTARY TEACHING

Preparation for the major. Art A, B, 2A, 2B, 14A, 15A, 17A or 18A, 50A, 50B, and 61. (23 units.)

Major. A minimum of 24 upper division units to include 117A or 118A, 119A, 120A, 156, 161, and twelve units of art electives eight of which should be in one area of concentration, as approved by the adviser in art for teaching programs.

SECONDARY TEACHING

Preparation for the major. Art A, B, 2A, 2B, 14A, 15A, 16A, 17A, 18A, 50A, 50B, 61 and 70A. (29 units.)

Major. A minimum of 24 upper division units to include Art 106A, 108, 112A, 115A, 116A, 119A, 156, 194A, and seven units of art electives.

ART MINOR

The minor in art consists of from 15 to 22 units in art, six units of which must be in upper division courses.

ART MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Elementary Teaching

Requirements are the same as the requirements for the degree with an emphasis in art education for elementary teaching as outlined above.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the degree with an emphasis in art education for secondary teaching as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of upper division or graduate art electives, selected after faculty evaluation of undergraduate work.

ART MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The teaching minor in art for secondary teaching consists of the following: in the lower division, Art A, B, 2A, 2B, 15A, 16A, 50A, and 50B; in the upper division, Art 156 (or one of the following: Art 153, 154, 155); and six units from Art 106A, 115A, 116A, 117A, 119A, 120A, 156.

If the major is non-academic, at least 12 upper division units of art must be taken. (27 units.)

ART APPRECIATION, HISTORY AND ORIENTATION

Many students, regardless of the field in which they may be majoring, recognize the need for an intelligent approach to the subject of art and art appreciation. However, due to the popular feeling that art is a subject requiring "talent," these students may refrain from enrolling in art courses. For students who desire a better understanding of art, but who do not intend to major in art, the following courses are recommended:

	Units
Art 5, Art Orientation	2
Art 50A-50B, History and Appreciation of Art	4
Art 51, Survey of Art of the Middle Americas	2
Art 52A-52B, Survey of Oriental Art	6
Art 8, The House and Its Environment	2

Other courses which require certain skills but which are not beyond the ability of the average college student are:

Art 61, Design in Crafts	3
Art 2A, Design and Aesthetics	2
Art 94, Costume design	2
Art 108, The House and Its Environment	2

LOWER DIVISION COURSES

A. Drawing and Composition (2) I, II
Six hours. No prerequisite.
Problems involving perspective to develop ability to draw still life, furniture, exteriors, interiors, and the like.

B. Drawing and Composition (2) I, II
Six hours. Prerequisite: Art A.
Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing.

2A. Design and Aesthetics (3) I, II
One lecture and six hours of laboratory.
Fundamentals of space and color design. Basic course used as a prerequisite for advanced work. Not open to students with credit in Art 6A or 9.

2B. Design and Aesthetics (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Art 2A.
Continuation of Art 2A. Original work in creative design including projects in three dimensions. Not open to students with credit in Art 6B or 10.

5. Art Orientation (2) I
Two lectures. No prerequisite.
An illustrated lecture course dealing with aesthetic meaning and a survey of the history of western art. Designed to increase the understanding and appreciation of art.

7. Line, Color and Display (2) I, II
Six hours. No prerequisite.
The principles of line, color and arrangement applied to store and window display. Study and observation of windows, color and materials used in display. Building models and practical problems in arranging colors, textures, and forms in windows to fit different kinds of merchandise. (Students who may later wish to apply for upper division credit for this course as applied to a major will be required to do additional work.)

8. The House and Its Environment (2) I, II
Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment.

13. Furniture Design (2) I, II
Six hours.
Prerequisite: Art 2A. Recommended: Industrial Arts 5.
Study of the principles of design through the making of furniture.

14A. Beginning Graphic Communication (2) I, II
Six hours.
Prerequisite: Art 2A.
Fundamental art principles applied to lettering, extension of verbal statement through accurate lettering and (original) problems using letter characters as design elements. General introduction to type through hand lettering and typographic design. (Formerly entitled: Lettering.)

14B. Intermediate Graphic Communication (2) I, II
Six hours.
Prerequisite: Art 14A.
The application of lettering to posters, newspaper and magazine advertising, and other forms of commercial art. The study of composition combined with lettering and special study of modern tendencies in publicity. (Formerly entitled: Posters and Commercial Art.)

15A. Life Drawing (2) I, II
Six hours.
Prerequisite: Art B.
Drawing from the nude model.

15B. Life Drawing (2) I, II
Six hours.
Prerequisite: Art 15A.
Continuation of Art 15A.

16A. Oil Painting (2) I, II
Six hours.
Prerequisite: Art B.
Composition of still-life and landscape in color.

16B. Oil Painting (2) I, II
Six hours.
Prerequisite: Art 16A.
Landscape and more advanced composition in color.

17A. Sculpture (2) I, II
Six hours.
Prerequisite: Art 2B. Recommended: Industrial Arts 5.
Creative design in such materials as clay, wood, stone, concrete, etc.

17B. Sculpture (2) I, II
Six hours.
Prerequisite: Art 17A.
Continuation of Art 17A.

18A. Watercolor Painting (2) I, II
Six hours.
Prerequisites: Art A and B.
Composition of still-life and landscape in watercolor.

18B. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A.
Continuation of Art 18A.

19A. Ceramics (2) I, II
Six hours.
Prerequisite: Art 2A.
Design and construction of hand-built ceramic forms using slab, coil and carved sculpture techniques. Emphasis on form and its enhancement through surface enrichment of natural clay. Bisque firing.

19B. Ceramics (2) I, II
Six hours.
Prerequisite: Art 19A.
Continuation of Art 19A. Introduction to use of the potter's wheel and application of glaze for surface enrichment.

50A. Appreciation and History of Art (2) I, II
Two lectures. No prerequisite.
A survey of art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated.

50B. Appreciation and History of Art (2) I, II
Two lectures. No prerequisite.
The period from the Renaissance through the modern school treated in the same manner as in 50A

51. Survey of the Art of Middle America (2) Irregular
Two lectures. No prerequisite.
A study of Middle American art from earliest time to the present.

52A. Survey of Japanese Art (3) II
A study of the arts of Japan.

52B. Survey of Chinese Art (3) I
A study of the arts of China.

61. Design in Crafts (3) I, II
Six hours.
Prerequisite: Art 2A.
Study of visual and structural form in crafts.

70A. Jewelry (2) I, II
Six hours.
Prerequisite: Art 2A.
Design and fashioning of jewelry and tableware.

70B. Jewelry (2) I, II
Six hours.
Prerequisite: Art 70A.
Continuation of Art 70A.

80A. Weaving (2) I, II
Six hours.
Prerequisite: Art 61.
Study of structure and design of woven fabrics. A variety of exercises in traditional, contemporary, and experimental weaves using a wide range of materials. Introduction to the basic mechanics and techniques of hand weaving.

80B. Weaving (2) I, II
Six hours.
Prerequisite: Art 80A.
Continuation of Art 80A.

94A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 2A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

94B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 94A.
Continuation of Art 94A.

95A. The Contemporary House (2) I, II
Six hours.
Prerequisites: Art A, 2A, and 8.
Elementary problems in neighborhood planning, house design, interior design and landscaping. (Formerly entitled: Interior Design.)

95B. General Interior Design Theory (2) I, II
Six hours.
Prerequisite: Art 95A.
New conceptions of space in architecture, landscape and interior design. Various approaches to interior design. Relationship of furniture, fabrics, light, color and art concepts. (Formerly entitled: Interior Design.)

UPPER DIVISION COURSES

100A. Advanced Drawing (2) I, II
Six hours.
Prerequisites: Art 15A and 16A.
A course in drawing with color wherein an objective attitude is taken toward the qualitative aspect of visual subject matter. Objects are studied and represented as visual stimuli rather than as stereotypes.

100B. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art 100A.
A course in drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.

105-S. Classroom Display for Teachers (3) Summer
A lecture and workshop course for elementary and secondary teachers in principles and techniques of modern display to meet various subject, classroom, and school requirements. Special attention to individual problems and needs.

106A. Printmaking (2) I, II
Six hours.
Prerequisites: Art B and 2A.
Introduction to printmaking media: woodcut, wood-engraving, serigraphy, lithography, and intaglio (copper and zinc engraving, drypoint, etching, aquatint, and mixed media). Special emphasis on technical processes.

106B. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106A.
Concentration upon the creation of fine prints in media selected from those studied in Art 106A.

106C. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106B.
Continuation of Art 106B with advanced creative studies in printmaking.

106D. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106C.
Advanced creative studies in printmaking.

107. Color and Design in Merchandise (2) I, II
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

108. The House and Its Environment (2) I, II
Architecture, interior design, landscape and city planning for forming man's physical and aesthetic environment, its simplicities and complexities. Not open to students with credit in Art 8.

110. Advanced Crafts in the Elementary Schools (2) I, II
Six hours.
Prerequisite: Art 2A.
An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Not open to students with credit in Art 10 or 61.

111A. Industrial Design (2) I, II
Six hours.
Prerequisites: Art A and 2B.
Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering in perspective and scale models.

111B. Industrial Design (2) I, II
Six hours.
Prerequisite: Art 111A.
Continuation of Art 111A.

112A. Design and Composition (2) I, II
Six hours.
Prerequisites: Art A, B, 2B, and 16A.
Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique.

112B. Design and Composition (2) II
Six hours.
Prerequisite: Art 112A.
Continuation of Art 112A.

113A. Advanced Furniture Design (2) I, II
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.
Prerequisite: Art 13. Recommended: Industrial Arts 5.
Principles of design through the making of furniture.

113B. Advanced Furniture Design (2) I, II
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.
Prerequisite: Art 113A.
Continuation of Art 113A.

113C. Advanced Furniture Design (2) I, II
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.
Prerequisite: Art 113B.
Advanced individual design; exploration of materials, process and function.

113D. Advanced Furniture Design (2) I, II
Six hours. Total credit in Art 13, 113A, 113B, 113C, and 113D limited to eight units.
Prerequisite: Art 113C.
Continuation of 113C.

114A. Design for Advertising (2) I
Six hours.
Prerequisite: Art 14B.
Advanced course for advertising design students. Aims to develop professional concepts and techniques through student projects.

114B. Advanced Advertising Design (2) II
Six hours.
Prerequisite: Art 114A.
Advanced study with emphasis on the development of a portfolio of advertising design samples by the individual student.

114C. Advanced Advertising Design (2) I, II
Six hours.
Prerequisite: Art 114B.
Continuation of Art 114B.

114D. Advanced Graphic Communication (2) I, II
Six hours.
Prerequisite: Art 114C.
Advanced study of communication levels achieved through a symbolic imagery and typographic design.

115A. Life Drawing and Painting (2) I, II
Six hours.
Prerequisites: Art 15A and 16A.
Drawing and painting from nude and costumed models.

115B. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115A.
Continuation of Art 115A.

115C. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115B.
Continuation of Art 115B.

115D. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115C.
Continuation of Art 115C.

116A. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 16A or 16B.
Painting in oil from still life, landscape, or models, stressing composition.

116B. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116A.
Continuation of Art 116A.

116C. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116B.
The influence of art media and picture plane on aesthetic organization in representational painting.

116D. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116C.
Continuation of Art 116C.

117A. Advanced Sculpture (2) I, II
Six hours.
Prerequisites: Art 2B and 17A or 17B.
Creative design in such materials as clay, wood, stone, concrete, etc.

117B. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117A.

117C. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117B.
The influence of art media and tools on aesthetic organization in sculpture in relief and in the round.

117D. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117C.
Continuation of Art 117C.

118A. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18B.
Composition of still life and landscape in watercolor.

118B. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 118A.
Continuation of Art 118A.

119A. Ceramics (2) I, II
Six hours.
Prerequisite: Art 19B.
Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

119B. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119A.
Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

119C. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119B.
Continuation of Art 119B with advanced creative projects.

119D. Advanced Ceramics (2) I, II
Six hours.
Prerequisites: Art 119C.
An advanced study of ceramic design through creative projects of clay forms.

120A. Advanced Design (2) I, II
Six hours.
Prerequisites: Art B and 2B.
Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

120B. Advanced Design (2) I, II
Six hours.
Prerequisite: Art 120A.
Continuation of Art 120A.

133A. Visual Presentation (2) I, II
Six hours.
Prerequisites: Art A, B, and 2A. Art 18A recommended.
Mechanical and freehand drawing. Methods, materials, and tools of the professional designer stressing art principles in colored renderings of architectural plans, elevations, perspectives, and working drawings. Exploration of many art media including watercolor, designers' color, colored pencils, chalks, and dyes.

133B. Visual Presentation (2) I, II
Six hours.
Prerequisite: Art 133A.
A continuation of Art 133A with an emphasis on freehand visualization and description of design projects. Presentation techniques will include two- and three-dimensional mock-ups and photography.

135A. History and Theory of Interior Design (2) I, II
Prerequisites: Art 50A-50B.
The history and theory of interior design from earliest times to the 18th century.

135B. History and Theory of Interior Design (2) I, II
Prerequisites: Art 50A-50B.
The history of interior design from the 18th century to the present.

152A. The Art of India and Southeast Asia (3) Irregular
Prerequisites: Art 50A and 50B.
History of the art, architecture, and sculpture of India and Southeast Asia.

152B. The Art of Persia and the Islamic World (3) Irregular
Prerequisites: Art 50A and 50B.
History of the art, architecture, sculpture and minor arts of Persia and the Islamic World.

153. Ancient Art (3) I
Three lectures.
Prerequisites: Art 50A and 50B.
Development of painting, sculpture, architecture and crafts from prehistoric times to the fall of Rome.

154. Medieval Art (3) II
Three lectures.
Prerequisites: Art 50A and 50B.
Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.

155A. Renaissance Art (3) I
Prerequisites: Art 50A and 50B.
Architecture, sculpture and painting of the Renaissance.

155B. Baroque and Rococo Art (3) II
Prerequisite: Art 155A.
Architecture, sculpture and painting of the Baroque and Rococo periods.

156A. History of Modern Art (3) I, II
Three lectures.
Prerequisites: Art 50A and 50B.
Development of painting, sculpture, and architecture from the French Revolution to the 20th century.

156B. Contemporary Art (3) Irregular
Three lectures.
Prerequisite: Art 156A.
Current movements in sculpture, painting, graphics, and architecture.

157. The History of American Art (3) Irregular
Prerequisites: Art 50A and 50B.
Development of painting, sculpture, and architecture from Colonial times to the present.

158. Art of Primitive Peoples (3) Irregular
Prerequisites: Art 50A and 50B.
Arts of primitive peoples of Africa, South Seas, and the North American Indians and their influence upon the art of the twentieth century.

160. The History of Architecture (3) Irregular
Prerequisites: Art 50A and 50B, or Art 5.
Architecture from primitive times to the present.

161A. Design in Crafts (2) I, II
Six hours.
Prerequisite: Art 61.
Advanced creative design in varied craft media stressing visual and structural form.

161B. Design in Crafts (2) I, II
Six hours.
Prerequisite: Art 161A.
Advanced creative design in varied craft media stressing visual and structural form.

161C. Advanced Crafts (2) I, II
Six hours.
Prerequisite: Art 161B.
Advanced study in crafts such as textile design, mosaic, metal forming, enameling, serigraphy and other crafts media.

161D. Advanced Crafts (2) I, II
Six hours.
Prerequisites: Art 161C.
Advanced study in crafts in one specific area of study chosen with consent of instructor.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170A. Jewelry (2) I, II
Six hours. Total credit in Art 70A, 70B, 170A, 170B, 170C, and 170D limited to eight units.
Prerequisites: Art 70A and 70B.
Advanced problems in design and fashioning of jewelry and tableware.

170B. Jewelry (2) I, II
Six hours. Total credit in Art 70A, 70B, 170A, 170B, 170C, and 170D limited to eight units.
Prerequisite: Art 170A.
Continuation of Art 170A.

170C. Advanced Jewelry (2) I, II
Six hours. Total credit in Art 70, 170A, 170B, 170C, and 170D limited to eight units.
Prerequisite: Art 170B.
Advanced individual problems in jewelry.

170D. Advanced Jewelry (2) I, II
Six hours. Total credit in Art 70A, 70B, 170A, 170B, 170C, and 170D limited to eight units.
Prerequisite: Art 170C.
Continuation of 170C.

175. Problems in Art for Teachers (1-3) Irregular
Prerequisite: Consent of instructor.
Special problems in design adapted to the needs of teachers in service. May not be used to satisfy any pattern requirement for a credential. May be repeated once for credit.

180A. Advanced Weaving (2) I, II
Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.
Prerequisites: Art 80A and 80B.
Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques.

180B. Advanced Weaving (2) I, II
Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.
Prerequisite: Art 180A.
Continuation of Art 180A.

180C. Advanced Weaving (2) I, II
Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.
Prerequisite: Art 180B.
Advanced individual problems in weaving.

180D. Advanced Weaving (2) I, II
Six hours. Total credit in Art 80A, 80B, 180A, 180B, 180C, and 180D limited to eight units.
Prerequisite: Art 180C.
Continuation of 180C.

190. Principles and Elements of Visual Aesthetic Organization (2)
Three hours.
Prerequisites: Senior standing and Art 5.
An intensive investigation of visual aesthetic materials and the psychological principles involved in aesthetic organization.

191A. Gallery Exhibition Design (2) I, II
Six hours.
Prerequisite: 14 units of art.
Fundamental art elements and principles applied to the theories and techniques of gallery exhibition design.

191B. Gallery Exhibition Design (2) I, II
Six hours.
Prerequisite: Art 191A.
Advanced problems in the theories and techniques of gallery exhibition design.

193A. Drawing and Illustration for Graphic Communication (2) I
Six hours.
Prerequisites: Art B, 2A, 115A.
A course involving the disciplines of realistic descriptive illustration including problems in imaginative, aesthetically refined painterly illustration. Media to include gouache, watercolor, scratch board, mixed media, and pen and ink.

193B. Drawing and Illustration for Graphic Communication (2) I
Six hours.
Prerequisite: Art 193A.
Continuation of Art 193A.

194A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 2A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

194B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 194A.
Continuation of Art 194A.

195A. Interior Design (2) I, II
Six hours.
Prerequisites: Art 95A and 95B.
Survey, analysis and design methods concerning problems of interior design of moderate scope, stressing the visual concept as part of the total planning process.

195B. Environmental Design (2) I, II
Six hours.
Prerequisite: Art 195A.
Survey, analysis and design synthesis of problems of more complexity, through interiors, to landscape, to architectural planning, and finally concern for city design.

195C. Economics of Interior Design (2) I, II
Six hours.
Prerequisite: Art 195B.
Techniques and analyses of specification writing, supervision and budget studies of interior design and its application to various projects.

195D. Advanced Interior Design (2) I, II
Six hours.
Prerequisite: Art 195C.
The complete conception and execution of all stages of a full-scale interior design project.

196A. Visual Communication Media (2) I, II
Six hours.
Prerequisites: Art 94A and 114A.
Special emphasis in developing concepts on a personal level and its application to layout—newspaper, magazines and editorial. (Formerly entitled: Fashion layout.)

196B. Visual Communication Media (2) I, II
Six hours.
Prerequisite: Art 196A.
Continuation of 196A.

197. Exploration in Visual Imagery (2)
Six hours.
Prerequisite: 14 units of art.
Investigation of experimental and technical reproductive media.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

GRADUATE COURSES

206A-206B. Creative Printmaking (1-6)
Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. May be repeated to a maximum of six units towards the master's degree.

214. Creative Graphic Communication (1-6)
Prerequisite: Art 114D.
Advanced individual study in graphic design. May be repeated to a maximum of six units.

216A-216B. Creative Painting (1-6)
Prerequisites: Art 112A, 112B, 116A, and 116B.
Aesthetic organization of selected visual subject matter in the medium of colors in oils. May be repeated to a maximum of six units towards the master's degree.

217A-217B. Creative Sculpture (1-6)
Prerequisites: Art 117A, B, C, and D.
Aesthetic organization of selected subject matter in the media of sculpture. May be repeated to a maximum of six units towards the master's degree.

219A-219B. Creative Crafts (1-6)
Prerequisites: Six units completed in upper division courses in sculpture or ceramics or printmaking or a combination of these courses.
Advanced creative work in selected craft media. May be repeated to a maximum of six units towards the master's degree.

222. Art Education Colloquium (2)
Prerequisite: Minimum of 14 units of upper division art.
Historic and current art education philosophies. (Formerly Art 122.)

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Seminar in Creative Art (3)
Seminars in creative art are offered to provide discussion and independent research in specified areas and include the presentation of a paper with its oral defense.

Each course may be taken to a maximum of six units. No more than six units of the 291 series is applicable to a master's degree.

A. Seminar in Painting
B. Seminar in Sculpture
C. Seminar in Printmaking
D. Seminar in Ceramics
E. Seminar in Crafts
F. Seminar in Graphic Communication

292A-292B. Seminar in Art History (3-3)
Prerequisites: Art 50A and 50B.
An intensive study of the development of art styles in selected historical periods.

294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)
Prerequisite: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ASTRONOMY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Huffer, Nelson, B., Smith, C. E., (Chairman)

Associate Professor: Schopp

Assistant Professors: Daub, Young

Offered by the Department of Astronomy

Master of Science degree with a major in astronomy. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in astronomy with the A.B. degree in liberal arts and sciences.

Major in astronomy with the A.B. degree in applied arts and sciences.

Minor in astronomy.

ASTRONOMY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Preparation for the major. Astronomy 1, 9; and Physics 4A-4B-4C (16 units).

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B; and Physics 101, 105, 112, and three additional units of upper division physics. Recommended: Astronomy 103, 180; Physics 103, 106, 110, 175, 190.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52 and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 7, 140A, 140B, 175; Engineering 188.

ASTRONOMY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

Preparation for the major. Astronomy 1, 9; Physics 4A-4B-4C (16 units).

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and Physics 101, 105, 112. Recommended: Astronomy 103, 180; Physics 103, 106, 110, 175, 190.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics, to include Mathematics 50, 51, 52, and either 118A-118B or 119, and three additional units of upper division mathematics. Recommended: Mathematics 7, 140A, 140B, Engineering 188.

ASTRONOMY MINOR

The minor in astronomy consists of from 15 to 22 units in astronomy, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

1. Descriptive Astronomy (3) I, II

Methods of astronomy and of the physical nature of members of the solar system, our galaxy and other galaxies. Telescopes will be used for occasional observations. Not open to students with credit in Astronomy 50.

9. Practice in Observing (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Astronomy 1 or 50.

A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescope.

10. Advanced Observational Astronomy (1) II

Three hours of laboratory.

Prerequisite: Astronomy 9.

A continuation of Astronomy 9. More advanced problems in observing will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc.

12. Elementary Navigation (3) I

Three hours of laboratory.

Recommended prerequisites: Astronomy 1 and 9.

A study of compass corrections, time, line of position, use of celestial co-ordinates, etc. A few class hours devoted to the use of tables such as H.O. 214 for the solution of astronomical triangles.

Astronomy

30A-30B. Survey of Literature in Astronomy (1-1) I, II

Prerequisite: Astronomy 1.

Readings in current developments in astronomy; primarily for astronomy majors.

50. Physics of the Solar System (3) I

Prerequisites: Credit or concurrent registration in Mathematics 50 and Physics 4A.

A mathematical treatment of the structure and composition of the Solar System with a study of the physical nature of the sun, planets, satellities, comets, and meteors. Not open to students with credit in Astronomy 1.

51. Physics of the Stellar System (3) II

Prerequisites: Mathematics 50 and Physics 4A.

Application of mathematical and physical principles to stellar astronomy and the universe.

UPPER DIVISION COURSES

103. Astronomical Optics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Astronomy 50, or Physics 4C, or Physics 2B and 3B.

Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

104A-104B. Advanced Astronomy (3-3)

Prerequisites: Astronomy 1 and 9 and credit or concurrent registration in both Mathematics 51 and Physics 4C.

Problems in practical astronomy, such as atmospheric refraction, proper motion, photographic and photoelectric photometry, solar system astrophysics, and stellar dynamics.

105. Historic Development of Astronomy (3) I

A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as Galileo, Kepler, Newton, Herschel, Bessel, etc.

107. Method of Least Squares and Computing Practices (3) I

Prerequisite: Mathematics 52.

Fundamental principles with applications in the fields of astronomy, physics, and engineering.

112A-112B. Astrophysics (3-3)

Prerequisites: Physics 4C and Astronomy 51. Astronomy 112A is prerequisite to 112B.

An application of modern physics to a study of the sun and the stellar system. A large part of this course will deal with the application of spectroscopy to the study of celestial objects.

113. Surveyor's Course in Practical Astronomy (3) II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 2 or consent of instructor. Astronomy 50 and 9 desirable.

The principles of spherical astronomy adapted to the needs of engineering students. Computation and observation.

150. Introduction to Variable Stars and Peculiar Stars (3) II

Prerequisite: Astronomy 104A or 112A.

A study of variable stars: classification, periods, relation to other stars, methods of observation, and results; also a study of stars with unusual features in their spectra. (Formerly Astronomy 110.)

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

180. Celestial Mechanics (3) I, II
Prerequisite: Mathematics 52.
A study of the problem of two bodies based on the solutions of differential equations using Newtonian mechanics. Potential theory; geometrical interpretation of perturbations; calculation of planetary positions.

196. Advanced Topics in Astronomy (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in theoretical astronomy or astrophysics. May be repeated with new material for a total of six units, upon approval of instructor.

198A. Senior Project (1) I
One lecture-discussion period.
Prerequisite: An acceptable master plan for graduation within one year.
Consists of the selection and design of individual projects; oral and written progress reports.

198B. Senior Project (2) II
Six hours of laboratory.
Prerequisite: Astronomy 198A.
Laboratory work, progress reports, oral and written reports.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: Three units in astronomy and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced astronomy, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Binary Stars (3)
Prerequisite: Astronomy 112B.
An intensive study of visual, spectroscopic, and eclipsing binaries, including the determination of orbits.

220. Galactic and Extragalactic Structure (3)
Prerequisite: Astronomy 112B.
Types, movements and characteristics of stars in the galaxy and a similar study of extragalactic structure.

230. Stellar Interiors (3)
Prerequisite: Astronomy 112B.
Structure of the interior of stars including the details of the reactions by which energy is obtained and the evolution of stars.

280. Orbit Theory and Computation (3)
Prerequisite: Astronomy 180.
A study of the derivation of the methods of determining orbits of comets, asteroids, and planets. The computation of an orbit will be required.

297. Research (Credit to be arranged)
Research in one of the fields of astronomy. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Emeritus: Johnson, Myrtle E.

Professors: Brandt (Chairman), Farris, Ratty, Shepard, Taylor, K.

Associate Professors: Baer, Brookes, Cox, G., Hazen, Johnson, A., McBlair, Neel, Rinehart, Sloan

Assistant Professors: Awbrey, Collier, B., Darby, Daugherty, Davis, Ford, Futch, Melchior, Miller, P., Parsons, Schapiro, Thwaites

Offered by the Department

Master of Arts or Master of Science degree with a major in biology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in biology with the A.B. degree in liberal arts and sciences.

Major in biology with the A.B. degree in applied arts and sciences.

Major in biology with the B.S. degree in applied arts and sciences.

Minor in biology.

Curricula in the biological sciences which prepare for the fields of entomology, fish and game, plant quarantine, and wildlife. (Consult the adviser.)

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

Teaching minor in biology, with specialization in both elementary and secondary teaching.

BIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. Students must choose French, German, or Russian to meet the foreign language requirement for graduation.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 2A-2B and 3A-3B. (35 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

BIOLOGY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog. In addition, students must complete twelve units of a single foreign language (chosen from French 1, 2, and 3 or 8A-8B; or German 1, 2, and 3 or 8A-8B; or Rusisan 1, 2, and 3 or 8A-8B), or equivalent knowledge demonstrated by a test of reading knowledge administered by the foreign language department concerned in consultation with the Department of Biology.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 2A-2B and 3A-3B or Physics 4A-4B-4C. (35-41 units.)

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

BIOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B and 11 or 12; Mathematics 21 and 22; Physics 2A-2B and 3A-3B or Physics 4A-4B-4C. (35–41 units.)

Major. A minimum of 36 upper division units to include Biology 101, 110, and 155; an advanced course in the biological sciences for which Biology 101, 110 or 155 is prerequisite; Biology 190, 191 or 195; and electives from natural science selected with the approval of the adviser.

BIOLOGY MINOR

The minor in biology consists of 16-22 units in biological sciences to include Biology 1 and 2 or the equivalent, and a minimum of nine upper division units in biological sciences selected with approval of the biology adviser.

BIOLOGICAL SCIENCES MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences and/or the teaching minor. Courses must have approval of the adviser for biology teaching programs.

BIOLOGY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in biology for elementary teaching consists of Chemistry 1A-1B or 2A-2B plus at least 20 units in the biological sciences to include Biology 1 and 2. Electives in the biological sciences must be chosen in consultation with the departmental adviser for teaching programs.

Specialization in Secondary Teaching

The minor in biology for secondary teaching consists of Chemistry 1A-1B, and 11 or 12, plus at least 20 units in the biological sciences to include, in the lower division, Biology 1, 2, and 15; in the upper division, Biology 101, 110, and 115.

HIGH SCHOOL PREPARATION

Students in high school planning to enter any of the biological sciences should include in the high school program the following subjects: Elementary algebra, plane geometry, intermediate algebra, trigonometry, chemistry, and physics. Three years of French, German or Russian are recommended.

OTHER CURRICULA IN THE BIOLOGICAL SCIENCES

Within the majors offered in the biological sciences, curricula may be arranged for students interested in preparing for the fields of entomology, fish and game, plant quarantine, and wildlife. Students planning to specialize within the area of the biological sciences should consult with the departmental adviser in selection and arrangement of courses.

LOWER DIVISION COURSES

1. General Biology (3) I, II

Prerequisites: None; concurrent registration in Biology 2 recommended.

A beginning course in biology stressing processes common to living organisms.

2. General Biology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 1.

A laboratory course in biology stressing processes common to living organisms.

4. Natural History of Plants and Animals (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 1.

An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats.

9. Human Physiology (5)

Three lectures and six hours of laboratory.

Prerequisites: Zoology 8 or 60; Chemistry 2A-2B.

Functions of the human body; emphasis on the circulatory, muscular, and nervous systems. Not open for credit to students with credit for Biology 22. (Formerly Zoology 9.)

15. Introduction to Quantitative Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 1, 2, and Mathematics 21.

Methods and experience in defining and solving quantitative problems in biology. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

22. Principles of Human Physiology (3) I, II

Prerequisite: Biology 1 or Zoology 8.

Principles of human physiology. Body maintenance and nerve and muscle physiology. Not open to students with credit for Biology 9. (Formerly Zoology 22.)

23. Human Physiology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 22.

Laboratory work in human physiology. Not open to students with credit for Biology 9. (Formerly Zoology 23.)

25. Introduction to Heredity (3) I, II

Study of the mechanism of heredity emphasizing the biological interrelationships of humans and representative plants and animals.

UPPER DIVISION COURSES

101. General Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A, 1B, 12; and Physics 2A, 2B, 3A, and 3B or 4A-4B-4C.

The physiological processes at the cellular, tissue and organ levels.

103. General Cytology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods.

109. Regional Field Studies in Biology (1-3)

One- to three-week periods during vacations and summer sessions.

Prerequisites: At least 12 units in the biological sciences, including Biology 1 and 2, and consent of instructor.

Extended field studies of the flora, fauna, and biotic communities of major natural regions of western North America. May be repeated with new content to a maximum of six units.

110. Ecology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

111. Aquatic Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; and Chemistry 1A and 1B.

Biological, chemical and physical considerations of inland waters.

112. Fisheries Biology (3) II

Two lectures and three hours of laboratory.

Prerequisite: Biology 15.

Theory and practices of fishery management. Life histories and biology of important game and food fishes.

113. Biological Oceanography (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 15, 110; Zoology 50; Chemistry 1B; Physics 2B.

A study of benthic and pelagic marine organisms and their environmental parameters.

114. Advanced Ecology (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 110.

The ecology of individuals, populations, or communities.

115. Conservation of Wildlife (3) I, II

Prerequisite: Biology 1.

Plant and animal resources with emphasis on their conservation and intelligent use. (Formerly Biology 158.)

142. Comparative Animal Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 101 and consent of instructor.

The functional and phylogenetic aspects of responses and nutrition throughout the animal kingdom. (Formerly Zoology 142.)

150. Radiation Biology (3) I

Prerequisites: Biology 1 or equivalent and Physics 2A-2B, 3A-3B. Recommended: Chemistry 1A-1B, Biology 101, and Physics 121.

Principles underlying radiological reactions of ionizing radiations. Effects of ionizing radiations at the biochemical, cell, organ, and organism levels.

150L. Radiation Biology Laboratory (1) I

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Biology 150.

The laboratory determination of the effects of ionizing radiation on biological systems.

151. Radioisotope Techniques in Biology (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15; Chemistry 1A and 1B; Physics 2A, 2B, 3A and 3B. Recommended: Chemistry 4 or 5, and Biology 101.

The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

155. Genetics (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1, 2, and 15.

Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity.

156. Developmental Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 155 and Chemistry 12. Recommended: Biology 101.

Analysis of development with emphasis on embryonic differentiation. (Formerly Biology 105.)

157. Cytogenetics (4) I

Two lectures and six hours of laboratory.

Prerequisite: Biology 155.

The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

158. Human Genetics (4) II

Two lectures and six hours of laboratory.

Prerequisites: Biology 15, and Zoology 60 or 106 or Biology 104.

Principles of genetics as related to human biology with consideration of the applied fields of medical genetics, genetic counseling, and population studies. Students with credit for Biology 159 may enroll but will receive only two additional units of credit. (Formerly Zoology 164.)

159. Human Heredity (3) I, II

Prerequisite: Biology 1.

Selected principles of human inheritance with emphasis on relationships to other fields of human studies. Not open to students with credit in Biology 155 or 158. (Formerly Zoology 165.)

160. Experimental Evolution (3) II

Two lectures and three hours of laboratory.

Prerequisite: Biology 15.

The theories of evolution and speciation with emphasis on the methods of study of modern problems.

161. History of Biology (3) I, II

Prerequisite: A college course in biology.

Lectures and reports tracing biological scientific development, with emphasis on the influence of personalities and trends of the times. Not more than three units in the history of biology may be counted for graduate credit.

162. Source Material in the History of Biology (3)

Prerequisite: Biology 161.

A study of original papers of significance to the history of biology. Not more than three units in the history of biology may be counted for graduate credit.

165. Biology of Natural Populations (3)
Prerequisite: A college course in Biology.
The relation of modern concepts of genetics, ecology and physiology to natural populations with emphasis on the problems of human populations. Not open to majors in the biological sciences.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167A-167B. Biology for Teachers (4-4)
(Not to be offered in 1967–68)
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2, or equivalent.
Advanced study of biological principles including classification, physiology, morphology, and evolution. Designed primarily for those electing a biology minor for elementary or secondary teaching curricula. Not open to students majoring in the biological sciences.

169. Population Genetics (3)
Two lectures and three hours of laboratory.
Prerequisites: Biology 15 and 155, Mathematics 22 or 50.
Discontinuous and continuous variation in natural populations.

170-S. Contemporary Problems in Biology (1) Summer
A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. May be repeated for a total of 3 units.

175. Statistical Methods in Biology (3) II
Two lectures and three hours of laboratory.
Prerequisites: Biology 15 and Mathematics 22, or equivalents.
Application of statistical techniques to biological data. Not open to students with credit for another upper division course in statistics except with written approval of the chairman of the department offering the student's major, to be filed with the Evaluations Office.

190. Senior Investigation and Report in Physiology (2) I, II
Prerequisites: Biology 101, senior standing and consent of instructor.
Investigation and reports on current physiological literature.

191. Senior Investigation and Report in Ecology (2) I, II
Prerequisites: Biology 110, senior standing and consent of instructor.
Investigation and reports on current ecological literature.

195. Senior Investigation and Report in Genetics (2) I, II
Prerequisites: Biology 155, senior standing and consent of instructor.
Investigation and reports on current genetic literature.

198. Methods of Investigation (2) I, II
One hour of discussion and three hours of laboratory.
Prerequisites: Junior standing and a major in the Division of the Life Sciences.
Individual and original investigations in biology; class reports. Four units maximum credit for Biology 198 or a combination of this course with Microbiology or Zoology 198.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in biological science with grades of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced biology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Seminar in Cellular Biology (2)
Prerequisite: Biology 101 or 103.
May be repeated with new content to a maximum of four units.

220. Seminar in Developmental Biology (2)
Prerequisite: Biology 156.
May be repeated with new content to a maximum of four units.

221. Developmental Genetics (3)
Prerequisites: Biology 101 and 156.
Regulation of genetic information in developing systems.

222. Morphogenesis (3)
Prerequisites: Biology 101 and 156.
Regulation of cell migration, cell division, and pattern formation in developing systems.

230. Speciation (3)
Prerequisites: Biology 110 and 155; or Biology 160.
Concepts and principles of the origin of species.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Psychology 231)
Prerequisite: Biology 110 or Psycholgy 114.
A seminar in the types of species specific behavior patterns and their function in the living systems of animals. May be repeated with new content to a maximum of four units.

240. Seminar in Ecology (2)
Prerequisite: Biology 110 or 112.
May be repeated with new content to a maximum of four units.

250. Biogeography (3)
Prerequisite: Biology 110 or 160.
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.

260. Seminar in General Physiology (2)
Prerequisite: Biology 101 or Botany 130.
May be repeated with new content to a maximum of four units.

261. Seminar in Environmental Radiation (2)
Prerequisites: Biology 150 and 151.
The sources, characteristics, distribution, measurement, and fate of radioactive contaminants in the biosphere and interactions with the biota. Maximum credit four units applicable on a master's degree.

270. Seminar in Genetics (2)
Prerequisite: Biology 155.
May be repeated with new content to a maximum of four units.

271. Radiation Genetics (3)
Two lectures and three hours of laboratory.
Prerequisites: Biology 150, 155. Recommended: Physics 121.
Basic principles of ionizing and nonionizing radiations with special emphasis on involvement of genetic systems at all levels of biological organization.

276. Physiological Genetics (3)

Prerequisites: Biology 155 or 158; Chemistry 12. Recommended: Chemistry 115A-115B.

Biochemical aspects of the genetics of microbial and human systems.

277. Microbial Genetics Laboratory (3)

Nine hours of laboratory.

Prerequisites: Microbiology 1 or 101; Biology 276; Chemistry 115B or 116B.

The design, methods, and execution of research in microbial genetics.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Investigation and Report (3)

Analysis and research techniques in biology.

297. Research (1–6)

Research in one of the fields of biology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

BOTANY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Emeritus: Harvey

Professors: Gallup (Chairman), Wedberg

Associate Professor: Preston

Assistant Professor: Alexander

Offered by the Department

Master of Arts degree with a major in biology and an emphasis in botany. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in botany with the A.B. degree in liberal arts and sciences.

Major in botany with the B.S. degree in applied arts and sciences.

Minor in botany.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

BOTANY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. It is recommended that students choose French, German, or Russian to meet the foreign language requirement for graduation.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Botany 4; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 2A-2B and 3A-3B. (35–37 units.)

Botany

Major. A minimum of 24 upper division units to include Biology 101, 110, and 155; Botany 101 or 102 or 103, 130, and 190A-190B. Botany 114 and 140 and Microbiology 101 are recommended.

BOTANY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Botany 4; Chemistry 1A-1B, and 11 or 12; Mathematics 21 or 40; and Physics 2A-2B and 3A-3B. (35–37 units.) Recommended: German or French or Spanish; Geology 1A-1B or 2 and 3.

Major. A minimum of 36 upper division units in the biological sciences to include Biology 101, 110, and 155; Botany 101 or 102 or 103, 114, 130, and 190A-190B; Microbiology 101. Botany 140 is recommended.

BOTANY MINOR

The minor in botany consists of from 15 to 22 units in botany, six units of which must be in upper division courses.

BIOLOGICAL SCIENCES MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

LOWER DIVISION COURSES

4. Fundamentals of Botany (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Biology 1.

Basic processes and structure of plants.

UPPER DIVISION COURSES

101. Phycology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Morphology and phylogenetic relationships of the algae.

102. Mycology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

The structure, food relations, and classification of fungi.

103. Vascular Plants (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, development and phylogenetic relationships of the Bryophytes and vascular plants.

112. Cultivated Trees and Shrubs (3) I
One lecture and six hours of laboratory and field work.
Prerequisites: Biology 1 and 2. Botany 114 is recommended.
Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

114. Systematic Botany (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2; and either 110 or 155. Botany 103 recommended.
Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

119-S. Field Botany (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the Life Sciences Division.

126. Plant Pathology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2. Botany 102 recommended.
A practical course dealing with the principles of disease in plants, control measures, and quarantine procedures. Emphasis is placed on the determination and control measures of those pathogenic organisms which affect crops, trees and shrubs and nursery stock.

130. Plant Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 1, 2, 15, 101; and Chemistry 1A and 1B.
The activities of plants, including food manufacture, absorption, conduction, transportation, respiration, growth and movement. (Formerly numbered 107.)

140. Plant Anatomy (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 1 and 2. Botany 4 recommended.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types. (Formerly numbered 104.)

162. Agricultural Botany (2) II
Field trips to be arranged.
Prerequisites: Biology 1 and 2. Botany 4 or Zoology 121 recommended.
A study of California crop plants, their general identification, cultural methods, and regional distribution.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

172. Palynology (3) I
One lecture and six hours of laboratory.
Prerequisite: A course in college biological science.
Principles and methods of pollen and spore diagnosis, with reference to use in taxonomy, paleontology, anthropology, and medicine.

190A. Senior Investigation and Report (1) I
One discussion period and two additional hours to be arranged.
Prerequisites: Botany 101 or 102 or 103, and senior standing.
Selection and design of individual project; oral and written reports.

190B. Senior Investigation and Report (2) II
One discussion period and five additional hours to be arranged.
Prerequisite: Botany 190A.
Individual investigation, progress reports, oral and written final reports.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in botany with grades of A or B and consent of instructor.

EXTENSION COURSE

X-119. Plant Study of the California Deserts (3)
One lecture and six hours laboratory. Field trips arranged.
Flowering plants of the desert region.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced botany, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

297. Research (1-6)
Research in one of the fields of botany.
Maximum credit six units applicable on master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BUSINESS ADMINISTRATION

IN THE SCHOOL OF BUSINESS ADMINISTRATION

(A member of the American Association of Collegiate Schools of Business)

FACULTY

Department of Accounting
Emeritus: Brown, E., Wright
Professors: Brodshatzer, Ferrel, Odmark
Associate Professors: Dodds, Harned, Snudden (Chairman)
Assistant Professors: Bailey, Gilbert, Lightner, Purcell, Wade

Department of Business Education
Professors: Archer (Chairman), Crawford, M., Gibson, Le Barron, Pemberton, Straub
Associate Professor: Langenbach
Assistant Professors: Bissell, Graves, Sponseller

Department of Business Law and Finance
Professors: Hippaka, Reznikoff (Chairman)
Associate Professors: Chapman, Nye, W.
Assistant Professors: Fisher, H., Fisher, R., Hird, Naiman, Reints, Schmier, Wijnholds

Department of Management
Professors: Belcher, Hodge, Peters (Chairman), Pierson, Torbert
Associate Professors: Hampton, Srbich
Assistant Professors: Atchison, Galbraith, Ghorpade
Lecturer: Mitton

Department of Marketing

Emeritus: De Julien
Professors: Barber (Chairman), Hale, Sharkey
Associate Professors: Darley, Wotruba
Assistant Professors: Akers, Haas, Lindgren, McFall, Stratton

CURRICULA

Offered by the School of Business Administration

Master of Science degree in business administration with concentrations available in eight areas; a Master of Arts degree for teaching service with a concentration in business education; and a Master of Business Administration, a two-year degree. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Majors with the B.S. degree in business administration in the following fields: accounting, finance, insurance, management, marketing, information systems management, real estate. (Described in the section on the School of Business Administration.)

Minors in the following fields: accounting, business education, business management, employee relations, insurance, marketing, information systems management, production and operations management, real estate. (Described in the section on the School of Business Administration.)

Teaching major in Business Education with specialization in secondary teaching. (Described in the section on the School of Business Administration.)

Teaching minor in Business Education with specialization in secondary teaching. (Described in the section on the School of Business Administration.)

COURSES IN BUSINESS ADMINISTRATION

LOWER DIVISION COURSES

1A-1B. Accounting Fundamentals (2-2) or (4) I, II

Three hours of lecture and laboratory per two units of credit.

Prerequisite: Business Administration 1A is prerequisite to 1B.

Organizing, recording, and communicating economic information relating to the business entity.

30A. Business Law (3) I, II

Introduction to legal institutions; nature and sources of law; the judicial system; legal concepts and cases involving contracts, agency, and sales.

30B. Business Law (3) I, II

Prerequisite: Business Administration 30A.

Legal concepts and cases to be selected from business organization, negotiable instruments, property, security devices, creditors' rights and bankruptcy, trade regulation, and labor law.

40. The Business Enterprise (3) I, II

Not open to students who are majors or minors in any department of the School of Business Administration.

The business enterprise and its function in society; interrelations of ownership, entrepreneurship, and administration; interactions within the firm and within and among industries.

71. Beginning Typewriting (2) I, II

Four hours per week.

Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Advanced Typewriting (2) I, II

Four hours per week.

Application of typewriting skills in solution of typical business problems.

73. Computational Machines Laboratory (1) I, II
Two hours of laboratory.
Laboratory course in figuring and calculating machine principles and operation.

74. Communicative Machines Laboratory (2) I, II
Prerequisite: Business Administration 71.
Laboratory course in communication and duplicating machine principles and operation.

75A-75B. Shorthand (3-3) I, II
Five hours of lecture and activity.
Prerequisite: Business Administration 72; 75A is prerequisite to 75B.
Gregg shorthand theory; dictation and transcription.

76. Advanced Shorthand (3) I
Prerequisites: Business Administration 75A and 75B.
Development of speed in writing and transcription.

80. Written Communications in Business (3) I, II
Prerequisite: English 1A.
Principles of effective writing applied to business and industrial situations and to the organization and presentation of reports.

83. Information Processing and Computer Programming (3) I, II
Two lectures and three hours of laboratory.
Introduction to concepts of information processing and computer programming.

UPPER DIVISION COURSES

100. Intermediate Accounting (4) I, II
Prerequisite: Business Administration 1B.
Theories and principles underlying financial statements and determination of income of partnerships and corporations.

101. Specialized Accounting Problems (4) I, II
Prerequisite: Business Administration 100.
Problems involved in partnerships, consignments, consolidations, receiverships, foreign exchange, fund accounting, and other specialized areas.

102. Managerial Cost Accounting (4) I, II
Prerequisite: Business Administration 1B.
Management use of accounting data for planning and control; theories and practices of cost accounting, standard cost systems, distribution analysis, and capital budgeting.

106. Income Tax Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theory and procedures in the preparation of federal and California income tax returns for individuals, partnerships and corporations.

107. Advanced Income Tax Accounting (2) I, II
Prerequisite: Business Administration 106.
Theories of taxation as related to personal holding companies, corporate distributions, liquidation and capital changes; fiduciary return preparation; brief survey of gift, estate and social security taxes.

108. Governmental Accounting (2) I, II
Prerequisite: Business Administration 100.
Principles of fund accounting useful in state and local governmental units, hospitals, colleges, and universities. Comparisons with commercial accounting emphasized. Includes study of budgetary accounting, appropriations, encumbrances, internal checks and auditing procedures.

112. Auditing (4) I, II

Prerequisites: Business Administration 101 and 102.

General principles and concepts of auditing; consideration of the design of accounting systems; duties, ethics, and responsibilities of the auditor; procedures for verification of financial statements; auditor's reports.

114. Accounting Systems (2) II

Prerequisite: Business Administration 101.

General principles underlying the design and installation of accounting systems; survey of methods and procedures necessary for internal control applicable to various businesses; familiarization with potential and limitations of various data processing equipment.

115. Accounting Theory (3) I, II

Prerequisites: Business Administration 100 and 102 and one other upper division course in accounting.

Critique of contemporary accounting theory; recommendation for improvement of financial accounting; research in accounting theory.

116. Controllership (3) II

Prerequisites: Business Administration 100 and 102.

The controllership function in policy decisions; organizations, techniques, and reports for financial and operating control.

118. Advanced Business Law (3) I, II

Prerequisites: Business Administration 30A and a major in accounting with at least 9 units in upper division accounting.

Legal concepts and cases involving business organization, negotiable instruments, property, security devices, creditors' rights, bankruptcy, insurance, wills, trusts, estates, and suretyship. Special emphasis on problem-solving techniques. Not open to students with credit in Business Administration 30B.

119. Advanced Accounting Problems (3) I, II

Prerequisite: Business Administration 112.

An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C.P.A. examination prepared by the American Institute of Certified Public Accountants.

120. General Insurance (3) I, II

History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

121. Property and Casualty Insurance (3) I, II

Prerequisite: Business Administration 120.

All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control.

124. Life Insurance Principles and Practices (3) I, II

Prerequisite: Business Administration 120.

Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Estate Planning (3) II

Programming fundamentals with emphasis upon economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career.

127. Fundamentals of Finance (3) I, II

(Same course as Economics 133)

Prerequisites: Economics 1A and 1B or 103A and 103B, and Business Administration 1A and 1B.

Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries and government regulation of finance. The cost of capital.

128. Investments (3) I, II

Prerequisite: Business Administration 127.

Investment principles and practices with emphasis upon problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

129. Credit Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

Social, economic, and legal aspects of credit and lending policies. Analyzes the development and administration of credit and lending policies in domestic and foreign business relations, major financial institutions, and government.

130. Financial Analysis and Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

Evaluation of conditions and trends in the money and capital markets. Utilization of financial data as related to the problems of business enterprises. Emphasis on decision-making and research in finance.

131. Law in a Business Society (3) I, II

Prerequisite: Business Administration 30A.

The nature of law as a process of resolving economic disputes and social conflicts. Analysis of the rationale in statutes, judicial decisions, and doctrine. The role of law in the development of business concepts.

132. Fundamentals of Management (3) I, II

Prerequisite: Completion of lower division courses required in the major or minor.

An analysis of what a manager does, how he selects objectives, organizes essential activities, plans, directs and controls operations; fundamentals which guide a manager's decisions.

134. The Social Environment of Business (3) I, II

Prerequisite: Consent of instructor and senior standing.

An interdisciplinary study of American business enterprise in its cultural environment. The foundations of business; historical modifications; present relationship between business and society. The moral and ethical responsibilities of business and the businessman.

135. Fundamentals of Production and Operations Management (3)

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 132.

Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Study of production organizations, analytical models and methods, facilities, and design of control systems.

136. Production and Quality Control (3) I, II

Prerequisites: Business Administration 135 and Mathematics 130A.

Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

137. Motion and Time Study (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 135.
Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

138. Systems and Data Analysis (3) I, II
Two lectures and two hours of laboratory.
Prerequisites: Mathematics 7 or equivalent, and Business Administration 132.
The methods and concepts of gathering information, analyzing and reducing data, and preparing accounts and timely reports to management. Unified operations management, employing extensive use of computer technology in the design and operation of systems for managerial efficiency. Not open to students with credit for Business Administration 185.

140. Employee Relations (3) I, II
Prerequisite: Business Administration 132.
Problems of business and industry in dealing with employees, special attention to company and public policy, staffing, employee development, labor relations and employee motivation. Comparisons of current practices to underlying problems and theories.

141. Employee Relations Laboratory (1) I, II
Prerequisite: Credit or concurrent registration in Business Administration 140 or Political Science 144, or consent of instructor.
Investigation of employee relations practices and policies. Practice in interviewing, role playing, or in conducting field studies and related personnel research.

142. Wage and Salary Administration (3) I, II
Prerequisite: Business Administration 140.
Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice.

143. Problems in Employee Relations (3) II
Prerequisite: Business Administration 140.
The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

145. Human Factors in Management (3) I, II
Prerequisite: Business Administration 132 or Political Science 144.
Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management.

149. Business Policy (3) I, II
Prerequisites: Senior standing and consent of instructor.
Formulation and administration of policy; integration of the various specialties in business; development of over-all management viewpoint.

150. Marketing Principles (3) I, II
Prerequisites: Economics 1A and 1B.
Study of marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

151. Marketing Management (3) I, II
Prerequisite: Business Administration 150.
The managerial aspects of marketing. The development of marketing strategy and plans with the aid of social science concepts. Integrates the specific elements of the marketing function.

152. Retailing Principles (3) I, II
Prerequisite: Business Administration 150.
Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions.

153. Advertising Principles (3) I, II
Prerequisite: Business Administration 150.
Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

154. Marketing Problems (3) I, II
Prerequisite: Business Administration 150.
Complex cases in marketing involving analysis of business situations.

156. Market Behavior (3) I, II
Prerequisite: Business Administration 150.
Examination of the nature of markets and of the factors influencing market development and change. Study of the individual consumer's behavior in relation to the selling-buying process.

157. Market Research (3) I, II
Prerequisites: Business Administration 150 and Economics 2 or Mathematics 12.
Formal research techniques and analysis for marketing decisions; principles of decision making.

158. Market Research Laboratory (1)
Prerequisites: Business Administration 157.
Applications of market research techniques to selected topics. Uses and limitations of various methods of analysis. Orientation and use of computer center is included.

159. Analysis of Marketing Information (3) I, II
Prerequisites: Business Administration 150, and Economics 2 or Mathematics 12.
The analysis and interpretation of marketing and business information. Study of decision-making procedures used in conjunction with marketing information.

161. Traffic Management (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

162. Industrial Marketing and Wholesaling (3) I, II
Prerequisites: Business Administration 132 and 150.
Analysis of industrial market channels of distribution, advertising policies, merchandising techniques, applications and techniques of marketing research in industrial marketing and wholesaling; planning marketing programs for industrial products and wholesaling.

163. Sales Management (3) I, II
Prerequisites: Business Administration 150.
Consideration of the structure of sales organizations; sales policies; selection, training, compensation, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; markets and product research and analysis; co-ordination of personal selling with other forms of sales effort.

164. Purchasing and Buying (3) I, II
Prerequisites: Business Administration 132 and 150.
Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial uses, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing.

165. Foreign Marketing (3) II
Prerequisite: Business Administration 150.
Bases and promotion of foreign marketing; foreign marketing organizations and methods; technical and financial features of international markets; selection of organization and trade channels. Determinants and principles of foreign marketing policies.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

170. Real Estate Principles and Practices (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Functions and regulation of the real estate market; transfers of property, including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases; subdivision development; property management.

171. Law of Real Property (3) II
Prerequisites: Business Administration 30A, 30B, and 170.
Legal theory and practice of estates in land: landlord and tenant relationships; land transactions; mortgages and trust deeds; easements; land use; ownership rights in land; public land law.

172. Property Management (3) I
Prerequisite: Business Administration 170.
Study of the rental markets, property management programs, collection procedures, lease forms, tenant and owner relations, rental techniques, maintenance and rehabilitation procedures, and accounts and records.

173. Real Estate Finance (3) I, II
Prerequisites: Economics 1A, 1B, (or 103A, 103B), Business Administration 30A, 30B, and 170.
Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

174. Real Estate Appraisal Theory (3) I
Prerequisites: Business Administration 170.
Introduction to theories, functions, and purposes of appraisals of residential and income properties: Methods of valuation, techniques of market data analysis, rehabilitation estimates.

180. Workshop in Business Education (2) Summer
Developments in business education areas such as (A) bookkeeping, (B) distributive and basic business education, (C) secretarial, and (D) typewriting. Opportunity provided for work on individual problems. May be repeated with new subject matter to a total of eight units.

181. Administration and Supervision of Distributive Education (3) II
Objectives, duties, qualifications, and problems of supervisors and coordinators in organizing and administering distributive education programs.

182. Consumer Income Management (3) I, II
Functions and responsibilities of consumers; problems of choice-making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers.

183. Executive Secretarial Management (3) II
Prerequisites: Business Administration 72, 74, and 75B.
Executive secretarial responsibilities and functions, including a review for the Certified Professional Secretary Examination.

184. Information Systems Management (3) I, II
Administrative theories as they apply to typical information systems; interrelationship of personnel, equipment, and services; emphasis on quantitative and qualitative aspects of information systems.

185. Automated Management Information Systems (3) I, II
Prerequisite: Business Administration 83.
Concepts and techniques for the design, development, and implementation of EDP-based management information systems to improve decision making.

186. Data Processing Practicum (3) I, II
Prerequisites: Business Administration 83 and 185.
Fundamentals of systems flow charting and computer programing; computer applications to typical automated data processings problems.

187. Information Storage and Retrieval Systems (3) II
Prerequisite: Business Administration 83.
Systems for abstracting, storing, and retrieving information with automated equipment.

188. Advanced Programming Techniques (3) II
Prerequisite: Business Administration 83.
Two lectures and three hours laboratory.
Study of software packages utilized in EDP systems in business.

189. Scope and Function of Business Education (3) I
Philosophy, scope, and functions of business education; analysis and development of curricula; instructional foundations of basic business subjects.

197. Business Forecasting (3) I, II
Prerequisite: Business Administration 127.
Business fluctuations; forecasting, and related problems confronting the business firm; forecasting techniques; specific forecasts. Emphasis on the use of forecasts in the firm.

198. Investigation and Report (1-3) I, II
Prerequisites: Senior standing and consent of instructor.
May be repeated to a maximum of six units.
A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business administration staff.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSES

X-123A—123B. C.P.C.U. Preparation (3-3) Extension
Preparation for Chartered Property and Casualty Underwriter examination. Content to be selected by instructor from: Parts I and II—Insurance Principles and Practices; Part III—General Education; Part IV—Law; Part V—Accounting, Finance and Agency Management.

X-126A—126B. C.L.U. Preparation (3-3) Extension
Preparation for Chartered Life Underwriter examination. Content to be selected by instructor from the following: Part I—Life Insurance Fundamentals; Part II—Business, Accident and Sickness, Group Insurance, and Pensions; Part III—Law, Trusts, and Taxes; Part IV—Economics and Finance; and Part V—Life Underwriting. Each part of this offering represents a two-semester course.

GRADUATE COURSES

NOTE: Classified graduate standing is a prerequisite for all 200-numbered courses.

200. Financial Accounting (3)
Basic concepts and principles of financial accounting; accounting as a data processing system; measurement of business income; financial statements.

201A-201B. Business Organization and Management (3-3)
Functions, role, and relationships of business organizations; theories of management; decisions, dilemmas, and human values in industrial societies.

202A-202B. Quantitative Methods (3-3)
In 202A: Measures of central tendency and variation, sampling and various statistical tests such as analysis of variance, F, t, and X^2 tests. Simple and multiple correlation. In 202B: The design of statistical experiments and various operations research techniques such as simulation, linear programing, queuing theory, and Markov chain analysis.

203. Marketing (3)
The marketing activities of a firm in relation to management and society. Application of economic theory to marketing institutions and functions. Not open to students with credit for Business Administration 150 or equivalent.

204. Law for Business Executives (3)
Development, significance, and interrelationships of law and business. Analysis of essential aspects of law pertaining to business including materials from the law of contracts, sales, agency, business organizations, property, negotiable instruments, secured transactions. Effects of government regulation of labor and business.

205. Financial Principles and Policies (3)
Prerequisite: Business Administration 200.
Finance and financial institutions as they relate to the firm and the flow of funds. Emphasis upon the supply of and demand for capital; principles and tools of business finance; money and capital markets.

206. Managerial Economics (3)
Prerequisite: Economics 203.
Role of economic theory in management analysis and decisions. Study of demand, cost, and supply theories from a business viewpoint.

207. Research and Reporting (3)
Prerequisite: Business Administration 202A.
Principles of research design and data accumulation. Emphasis on the analysis and effective presentation of data related to business and industry.

208. Managerial Accounting (3)
Prerequisite: Business Administration 200.
Accounting in relation to the decision making process; various cost systems; relevancy of various cost concepts; direct costing, flexible budgets, distribution costing; break-even analysis; capital budgeting; and other techniques of management planning and control.

210. Theory and Analysis of Financial Statements (3)
Prerequisite: Business Administration 200.
An intensive study of the theories, principles, and concepts underlying financial statements; measurement and presentation of enterprise resources, equities, and income in accordance with generally accepted accounting principles; consideration of price level problems.

211. Advanced Accounting (3)
Prerequisite: Business Administration 210.
Principles and concepts as related to the measurement, determination, and presentation of resources, equities, and income of parent and affiliated companies; concepts of fund accounting; specialized reporting for partnership formation, income distribution, and liquidation; statement of affairs; estates and trusts.

212. Income Tax Accounting (3)
Prerequisite: Business Administration 210.
Provisions of the federal tax law, including preparation of returns for individuals, partnerships, corporations, estates, trusts; procedures for reporting deficiency assessments, refunds, and other administrative practices.

213. Auditing (3)
Prerequisite: Business Administration 211.
Critical analysis of the application of auditing principles in verification of financial statements; review of AICPA and SEC bulletins and regulations; consideration of professional ethics, audit standards, procedures, sampling techniques, and report writing; trends and developments in auditing profession.

219. Seminar in Accounting Theory (3)
Prerequisite: Business Administration 211.
Historical development of accounting principles and theory; problems in valuation, income determination, and statement presentation.

220. Legal Aspects of Labor-Management Relations (3)
Legal aspects of union organizational activities, representation proceedings, unfair labor practices, collective bargaining and contracts, grievances and arbitration, strikes, picketing, boycotts and injunctions.

221. Insurance Principles and Practices (3)
Nature and extent of personal, business, and social risk. Risk handling techniques; insurance principles and practices; basic contracts analysis; insurance underwriting and rating; insurance problems and trends; personal and business risk management.

222. Principles of Real Estate (3)
Functions and regulation of the real estate market, real estate finance, property management, real estate appraisal theory, specialized properties, urban development, and contemporary real estate problems.

223. Seminar in Business Finance (3)
Prerequisite: Business Administration 205.
Application of principles of finance to current problems in financial management, with emphasis on planning and development of tools for use in decision making. Consideration of case materials, study of the literature, and development of individual student reports.

225. Seminar in Insurance (3)
Prerequisite: Business Administration 221.
Risk management in effective business operations. Programing of personal and business risk problems. Insurance institutions.

226. Seminar in Real Estate (3)
Prerequisite: Business Administration 222.
Current problems in real property. Regional land use planning.

229. Seminar in Financial Markets (3)
Prerequisite: Business Administration 205.
Analysis of money and capital markets. Emphasis on factors of influence and sources and uses of data. Survey of literature in the field.

230. Production and Operations Management (3)
Two lectures and two hours of laboratory.
Prerequisites: Business Administration 202B.
Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Utilizes the system approach to achieve unification of the production elements in terms of both analysis and synthesis. Not open to students who have credit for a basic course in production management.

231. Advanced Methods Engineering and Work Measurement (3)
Prerequisite: Business Administration 230.
Analysis and solution of plant management problems using multiple operation analysis and advanced work measurement techniques (M.T.M., Work Factor System, and others). Relation of production to other functions.

232. Operations Research (3)
Prerequisite: Business Administration 230.
Programing and simulation techniques for analysis of interlocking decision problems with and without the use of computers. Derivation of man, machine, and systems models. Design of steady state and dynamic stochastic models.

239A. Seminar in Production and Operations Management (3)
Prerequisite: Business Administration 231.
Industrial risk and forecasting; diagnosis of industrial problems; production policies and organization; determination of production methods; coordination of production activities.

239B. Seminar in Production Management (3)
Prerequisite: Business Administration 232.
Analysis by quantitative techniques for managerial planning and decision making. Applications of operations research and other concepts to industrial situations.

240. Employee Relations (3)
Prerequisite: Business Administration 201B.
Analysis of theories and factors underlying managerial policies and practices involving employees.

241. Business and Labor (3)
Prerequisites: Business Administration 240.
Analysis of the role of unions in the modern business community with special attention to the impact of union policies on management.

242. Wage Theory and Administration (3)
Prerequisite: Business Administration 240.
Study of wage theory, factors, and criteria important in determination of wage rates. Wage structure, payment methods, and other compensation relating to the business firm.

243. Management Development (3)
Prerequisite: Business Administration 240.
Management development programs; organization, administration, development, and evaluation.

249. Seminar in Employee Relations (3)
Prerequisite: Business Administration 240.
Analysis of factors underlying managerial policies and programs in employee relations.

250. Seminar in Marketing and the Economy (3)
Prerequisite: Business Administration 203.
Advertising, selling, sales promotion, and merchandising as they relate to society, business and the economy.

251. Seminar in Marketing Theory (3)
Prerequisite: Business Administration 203.
Study of marketing theory and contributions of economics and behavioral sciences to marketing thought.

252. Marketing Institutions (3)
Prerequisite: Business Administration 203.
Analysis of development of wholesaling and retailing and of growth, change, and efficiency of these institutions in the American and other economies.

253. Seminar in Marketing Price Policy (3)
Prerequisite: Business Administration 203.
Study of pricing strategy and price determination in business organizations.

259. Market Analysis and Research (3)
Prerequisite: Business Administration 203 and 202B.
Application of statistical and mathematical methods to market problems, consumer research, and product analysis.

270. Seminar in Business Education (3)
An intensive study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting. May be repeated with new subject matter. Maximum of six units may be applied for the master's degree program.

273. Data Systems and Automation (3)
Prerequisite: Business Administration 202A.
Principles and techniques used in formulating, installing, and operating integrated and electronic data processing systems, including computer applications to typical automated data processing problems.

278. Seminar in Office Administration (3)
Prerequisite: Business Administration 273.
Advanced study of contemporary problems in office administration. Emphasis on current trends and developments and on individual student research.

279. Seminar in Data Systems Design (3)
Prerequisite: Business Administration 273.
Research in the analysis and design of data processing systems.

281. Behaviorial Sciences for Management (3)
Prerequisite: Business Administration 201B.
Applications of findings from behavioral sciences to management problems and decisions. Study of organization cultures and subcultures. Impact of human behavior on the enterprise.

282. Group Processes and Leadership (3)
Prerequisite: Business Administration 201B.
Perceptions and processes in work groups. Experience in interpersonal networks, influence and rewards, stereotypes; managing differences and conflicts.

283. Origins and Nature of American Business Enterprise (3)
Prerequisite: Business Administration 201B.
Factors underlying the American system of business enterprise: modern corporations, the corporation man, technological change, the business community and politics, and other significant issues.

284. Policy Formulation (3)
Prerequisite: Business Administration 201B.
Building and maintaining enterprises in our society; determining objectives; developing policies and plans for achievement; measuring and controlling organizational activities; reappraising objectives and policies on the basis of new developments.

289. Seminar in Organization and Management (3)
Prerequisite: Business Administration 201B.

Analysis of problems in business and other organizations. Organization and decision theory and contemporary developments in management science are emphasized.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

CHEMISTRY

IN THE DIVISION OF THE PHYSICAL SCIENCES

(The Department of Chemistry is on the approved list of the American Chemical Society.)

Faculty

Professors: Harrington, Hellberg, Isensee, Jensen, Joseph, Landis, Livingston, Malik, Robinson, Rowe, Spangler, Stewart, C. (Chairman), Wadsworth, Walba, Wick.

Associate Professors: Grubbs, Jones, W., O'Neal, Richardson, W., Ring, Sharts, Woodson.

Assistant Professors: Abbott, Leonhardt, Mathewson, J.

Offered by the Department

Doctor of Philosophy degree in chemistry, offered jointly with the University of California, San Diego. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Master of Arts or Master of Science degree in chemistry. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in chemistry with the A.B. or B.S. degree in applied arts and sciences, available with or without the Certificate of the American Chemical Society.

Major in chemistry with the A.B. degree in liberal arts and sciences. May be taken with or without the Certificate of the American Chemical Society.

Minor in chemistry.

Teaching major in chemistry, with specialization in both elementary and secondary teaching.

Teaching minor in chemistry, with specialization in both elementary and secondary teaching.

CHEMISTRY MAJORS

IN APPLIED ARTS AND THE SCIENCES

Three majors in chemistry are offered in applied arts and sciences. A chemistry major is also offered in liberal arts and sciences.

Chemistry

The chemistry majors available in applied arts and sciences are as follows:

(1) Chemistry major with the B.S. degree and Certificate of the American Chemical Society, a program designed to qualify graduates for many types of positions as chemists and for admission to graduate work in chemistry;

(2) Chemistry major with the A.B. degree and Certificate of the American Chemical Society, a program designed to prepare students for graduate work in chemistry; and

(3) Related Professions major, a program available only to students who are taking a Pre-medical, Pre-dental, or Teacher Education curriculum.

CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The Department of Chemistry is on the approved list of the American Chemical Society. Programs leading to a chemistry major with the B.S. degree or the A.B. degree are designed to meet the standards prescribed for the Certificate of the American Chemical Society. The program leading to the Related Professions major is not offered with the Certificate. Provision is made for students taking the chemistry major in liberal arts and sciences to obtain the A.B. degree with or without the Certificate.

FOREIGN LANGUAGE

German is required in all programs leading to the Certificate of the American Chemical Society.

CHEMISTRY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND THE SCIENCES AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The curriculum outlined below for the B.S. degree in applied arts and sciences is based upon the recommendations of the Committee for Professional Training of Chemists of the American Chemical Society. It qualifies graduates for many types of positions as chemists and provides the training required by most universities for admission to graduate work in chemistry.

A minor is not required with this major.

Preparation for the major. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 36 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and 14 units of upper division electives in chemistry or in related subjects with approval of the department.

Foreign language reguirement. German 8A.

OUTLINE FOR THE B.S. DEGREE AND CERTIFICATE

	Units			*Units*	
	1st Sem.	*2nd Sem.*		*1st Sem.*	*2nd Sem.*
First year			*Second year*		
Chemistry 1A-1B	5	5	Chemistry 5	4	–
†Mathematics 4, 40, 50	5	5	Chemistry 12	–	4
Physics 4A	–	4	Chemistry 13	–	1
Speech Arts 3 (or 4)	–	2	Mathematics 51, 52	4	4
*Biology 1	3	–	Physics 4B, 4C	4	4
English 1A	3	–	German 1, 2	4	4
P. E. activity	½	½	P. E. activity	½	½
	16½	16½		16½	17½

* Premedical and predental students will take Biology 1 and 2.

† Students eligible to take Mathematics 50 in their first semester should do so and then substitute for Mathematics 4 and/or 40 two to five units of electives.

Third year	Units 1st Sem.	Units 2nd Sem.
Chemistry 110A-110B	3	3
Chemistry 112, 113	5	–
Chemistry 155	–	4
German 8A	2	–
American Institutions	3	3
Psychology 1	–	3
Health Education 21	2	–
Social Science	–	3
	15	16

Fourth year	Units 1st Sem.	Units 2nd Sem.
Chemistry 111	3	–
Chemistry 198	1	–
Chemistry 127A	3	–
Adv. chemistry	6	8
Lit., philos., and the arts	3	3
Elective	–	3
	16	14

CHEMISTRY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The curriculum outlined below is offered for students who wish to take the A.B. degree in applied arts and sciences and at the same time meet the recommendations of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry.

A minor is not required with this major.

Preparation for the major. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 127A, 155, one unit of 198; and two units of upper division electives in chemistry to be chosen from Chemistry 116A, 118, 127B, 131, 154, 156.

Foreign language requirement. German 8A.

OUTLINE FOR A.B. DEGREE AND CERTIFICATE

First year	Units 1st Sem.	Units 2nd Sem.
Chemistry 1A-1B	5	5
‡Mathematics 4, 40, 50	5	5
Physics 4A	–	4
Speech Arts 3 (or 4)	–	2
*Biology 1	3	–
English 1A	3	–
P. E. activity	½	½
	16½	16½

Second year	Units 1st Sem.	Units 2nd Sem.
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
Physics 4B, 4C	4	4
Mathematics 51, 52	4	4
German 1, 2	4	4
P. E. activity	½	½
	16½	17½

* Premedical and predental students will take Biology 1 and 2.

‡ Students eligible to take Mathematics 50 in their first semester should do so and then substitute for Mathematics 4 and/or 40 two to five units of electives.

Third year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 110A-110B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 155	–	4
German 8A	2	–
American Institutions	3	3
Health Education 21	2	–
Psychology 1	–	3
Social Science	–	3
	15	16

Fourth year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 111	3	–
Chemistry 198	1	–
Chemistry 127A	3	–
Adv. Chemistry	–	2
Lit., philos., and the arts	3	3
†Elective	3	8
	13	13

† A total of 40 upper division units are required.

CHEMISTRY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES FOR RELATED PROFESSIONS

This plan is designed for only those students who desire the training in a pre-medical and pre-dental curriculum or for secondary school teaching. This plan cannot be taken by students who intend to become professional chemists or who intend to earn advanced degrees in chemistry or who plan to teach in junior colleges. Application for admission to the plan must be made to the department chairman upon achieving junior class standing. All transfer students with upper division standing must apply before the second semester of work at San Diego State College. With an appropriate choice of electives, graduates can meet the requirements for admission to medical, dental, and pharmaceutical schools. With a fifth year of graduate work, requirements for the secondary teaching credential can be met.

Preparation for the major. Chemistry 1A-1B, 4 (or 5), 12 and 13; Physics 4A-4B; Mathematics 4, 40, 50, 51, and Biology 1, 2. (45 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 109A, B, C (or 110A-110B, 111), 112, 155 (or 150), and eight units of upper division electives in chemistry. Chemistry 127A is recommended for all teaching majors. Chemistry 115A-115B or 116A-116B is recommended for all pre-medical students.

Minor. A minor in biology or zoology is expected for pre-professional students. The minor required for a secondary school credential may be completed in the fifth year for teaching credential candidates.

Foreign language requirement. Recommended: German 8A.

CHEMISTRY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. It is recommended that students choose German to meet the foreign language requirement for graduation.

A minor is not required with this major.

This major is designed for students desiring emphasis on chemistry as part of a liberal arts and sciences education or as preparation for entering a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. By careful choice of courses and either appropriate high school preparation (with trigonometry and two or three years of German, or with Advanced Placement credit) or the equivalent in additional college courses (taking the required courses in chemistry, physics, and mathematics as specified in Plan A, chemistry major in applied arts and sciences), students may complete the requirements for both the liberal arts and sciences degree and the major in chemistry with the Certificate of the American Chemical Society, as preparation for graduate work in chemistry.

Preparation for the major. Chemistry 1A-1B, 4, and 12; Physics 2A-2B and 3A-3B; and Mathematics 21 and 22. (32 units.)

Major. A minimum of 24 upper division units in Chemistry to include Chemistry 109A-109B, 109C, 112, 150; and eight units of upper division electives in chemistry.

CHEMISTRY MINOR

The minor in chemistry consists of Chemistry 1A-1B, 4 or 5, 12 (or equivalents), and six units of upper division courses in chemistry. (24 units.)

CHEMISTRY MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a credential must complete all other requirements for the credential, as outlined in the section of this catalog on the School of Education.

The major in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, requires an undergraduate major in chemistry. All courses for the teaching major must be approved by the chemistry adviser for teaching programs. In addition, candidates for the credential with a specialization in secondary teaching must complete, in the postgraduate year, a minimum of six units of graduate work in chemistry.

CHEMISTRY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

The minor in chemistry for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of not less than 20 units in chemistry, six units of which must be in upper division courses. If the major for secondary teaching is non-academic, at least 12 upper division units of chemistry must be taken. All courses must be approved by the chemistry adviser for teaching programs.

LOWER DIVISION COURSES

1A-1B. General Chemistry (5-5) I, II

Three lectures and six hours of laboratory.

Prerequisites: High school chemistry and two years of college preparatory mathematics. Recommended: High school physics and two years additional mathematics.

General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. Duplicate credit will not be allowed for the corresponding course in Chemistry 10A, 10B, or 1E. Students with credit for Chemistry 2A will receive 2 units of credit for 1A.

1E. General Chemistry for Engineers (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 1A.

A continuation of the study of the principles of chemistry with emphasis on the relationships to the field of engineering. Open only to engineering majors. Not open to students with credit in Chemistry 1B.

2A. Introductory General Chemistry (3) I, II

Two lectures and three hours of laboratory.

Elementary principles of chemistry. Not open to students with credit in Chemistry 1A.

2B. Elementary Organic Chemistry (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 2A or 1A.

Introduction to the compounds of carbon including both aliphatic and aromatic substances. Not open to students with credit in Chemistry 1B or 1E.

3. Chemistry of Nutrition (3) I, II

Three lectures with demonstrations.

Prerequisites: Chemistry 2A-2B. This course intended primarily for majors in home economics, nursing, and related fields.

Digestion, metabolism and nutrition of foodstuffs and the role of vitamins, hormones and electrolytes in life processes.

4. Elementary Quantitative Analysis (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1B or 2B.

Fundamentals of volumetric and gravimetric analysis. Not applicable to the B.S. and the Plan A for the A.B. degree for chemistry majors. Not open to students with credit in Chemistry 5.

5. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1B; and credit or concurrent registration in Mathematics 22 or 50.

Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 4. Duplicate credit will not be allowed for equivalent work in Chemistry 10A-10B.

10A-10B. Chemical Principles and Techniques (Honors) (5-5)

Three lectures and six hours of laboratory.

Prerequisites: An outstanding record in high school chemistry, physics, and mathematics, accompanied by superior achievement on the College Aptitude Test and the college Mathematics Placement Examinations.

The application of modern electronic theory to the study of general chemistry with emphasis in the laboratory on analytical methods. Qualitative and quantitative analysis is included. Chemistry 10A-10B takes the place of Chemistry 1A-1B and 5 for these students as prerequisites for further courses in chemistry.

11. Introductory Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

A one-semester study of both aliphatic and aromatic compounds including reaction mechanisms. Not open to students with credit in Chemistry 12.

12. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Stresses aliphatic compounds and includes an introduction to aromatic compounds. Not open to students with credit in Chemistry 11.

13. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 12.

Study of the theory and practice of laboratory operations. Synthesis of typical aliphatic compounds.

22. Glass Blowing (1) II

Three hours of laboratory.

Prerequisite: Chemistry 1B.

Elementary training in the manipulation of glass.

UPPER DIVISION COURSES

109A-109B. Fundamentals of Physical Chemistry (3-3) I, II

Prerequisites for 109A: Chemistry 4, Mathematics 22, and Physics 2B and 3B. Not open to students with credit in Chemistry 110A.

Prerequisites for 109B: Chemistry 109A and credit or concurrent registration in Chemistry 150. Not open to students with credit in Chemistry 110B.

Fundamental principles of theoretical chemistry. This course cannot apply to the Plan "A" A.B. or B.S. major in chemistry.

109C. Fundamentals of Physical Chemistry Laboratory (2) I, II

Six hours of laboratory.

Prerequisite: Concurrent registration or credit in Chemistry 109B. Not open to students with credit or concurrent registration in Chemistry 111.

Physico-chemical experiments, errors of measurement and technical report writing.

110A-110B. Physical Chemistry (3-3) I, II

Prerequisites for 110A: Chemistry 5 and credit or concurrent registration in Physics 4C and Mathematics 52. Not open to students with credit in Chemistry 109A.

Prerequisites for Chemistry 110B: Chemistry 110A. Not open to students with credit in Chemistry 109B.

Theoretical principles of chemistry with emphasis on mathematical relations.

111. Physical Chemistry Laboratory (3) I, II

Nine hours of laboratory.

Prerequisite: Credit in Chemistry 110B or concurrent registration with consent of instructor. Not open to students with credit or concurrent registration in Chemistry 109C.

Physico-chemical apparatus and measurements, with emphasis on technical report writing.

112. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 12.

Stresses aromatic compounds, continues with more complex aliphatics and introduces mechanisms of organic reactions.

113. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 112.

Study of theory and practice of laboratory operations. Synthesis of typical aromatic compounds.

114A-114B. Clinical Biochemistry (4-4)

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 4 or 5 and 12.

Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

115A-115B. Fundamentals of Biochemistry (3-3)

Two lectures and three hours of laboratory.

Prerequisites: Chemistry 4 or 5, and 12.

The chemistry and metabolism of carbohydrates, fats, and proteins. Not open to students with credit in Chemistry 116A-116B.

116A-116B. General Biochemistry (3-3)

Three lectures per week.

Prerequisites: Chemistry 109B or 110B, and 112.

The structure, function, metabolism, and thermodynamic relationships of chemical entities in living systems. Not open to students with credit in Chemistry 115A-115B.

118. Advanced Physical Chemistry (3) II
Three lectures per week.
Prerequisite: Chemistry 110B.
Chemical statistics, solid state theory, transport phenomena, chemical kinetics in solution and additional selected topics in modern physical chemistry.

127A. Inorganic Chemistry (3) I, II
Prerequisite: Credit or concurrent registration in Chemistry 109B or 110B.
The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

127B. Inorganic Chemistry (3) I, II
Prerequisite: Chemistry 127A.
An advanced systematic study of representative and transition elements and their compounds.

127C. Inorganic Chemistry (1) I, II
Three hours of laboratory.
Prerequisite: Chemistry 127A.
Laboratory work in synthetic inorganic chemistry.

130. Chemistry for Elementary Teachers (3) I
Basic concepts, methods, and materials of chemistry used in the elementary school. Open only to elementary teacher candidates. Not applicable to the major.

131. Theoretical Organic Chemistry (3) I, II
Prerequisites: Chemistry 109A or 110A and 112.
The application of modern electronic theory to the physical and chemical properties of organic compounds.

135. CHEM Study (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 1B.
New approach to the study of major concepts of chemistry. Based on lecture and laboratory materials prepared by the Chemical Education Materials Study Committee. Open only to secondary teacher candidates.

150. Analytical Chemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 4 or 5, 12, and 109A or 110A.
Advanced theory and practice of quantitative analysis and an introduction to instrumental methods of analysis.

154. Organic Qualitative Analysis (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.
A systematic study of the identification of organic compounds and mixtures.

155. Advanced Instrumental Methods (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 5, 112, and credit or concurrent registration in 110B. Not open to students with credit for Chemistry 150.
Advanced theory and practice of chemical instrumentation.

156. Quantitative Microanalysis (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and 150.
Techniques of microanalysis including carbon, hydrogen, nitrogen, halogen, sulfur, oxygen and metal analyses.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Engineering 160A-160B)
Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Radiochemistry (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Chemistry 4 or 5.
Laboratory principles and techniques of radioactivity applied to the various fields of chemistry. Experimental methods used in tracer applications, activation analysis, chemical investigation of the actinides, study of nuclear reactions, and radiolysis.

191. Chemical Literature (1) II
Prerequisite: Upper division standing in chemistry.
An introduction to the availability, scope and use of the chemical literature.

196. Selected Topics in Chemistry (1-3) I, II
Prerequisite: Consent of instructor.
A study of selected topics in modern chemistry. May be repeated for additional credit with new subject matter for a total of six units.

198. Senior Project (1-6) I, II
Prerequisites: Three one-year courses in chemistry and senior standing.
An individual investigation and report on a problem. May be repeated to a maximum of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor. Open only to students who have shown ability to do A or B work in chemistry.

GRADUATE COURSES

200. Seminar (1 to 3)
An intensive study in advanced chemistry, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Advanced Topics in Physical Chemistry (Credit to be arranged)
Prerequisite: Consent of instructor.
Selected topics in physical chemistry. Maximum credit six units applicable on a master's degree.

211. Chemical Thermodynamics (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
Chemical thermodynamics and an introduction to statistical thermodynamics.

212. Chemical Kinetics (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

213. Quantum Chemistry (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
Quantum mechanics of atomic and molecular systems; applications to chemical bonding theory.

214. Molecular Structure (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
Theory and techniques used in the determination of molecular structure.

215. Chemical Statistical Mechanics (3)
Prerequisite: Chemistry 211.
Statistical mechanics as applied to chemical systems.

216. Physical Chemistry of Electrolytic Solutions (2)
Prerequisite: Chemistry 211.
Theory of ionic solutions: electrode potentials, activity coefficients, partial molal quantities, conductance and ion association.

220. Advanced Topics in Inorganic Chemistry (Credit to be arranged)
Prerequisite: Chemistry 127A.
Selected topics in inorganic chemistry. Maximum credit six units applicable on a master's degree.

221. Mechanisms of Inorganic Reactions (3)
Prerequisite: Chemistry 127A.
Mechanisms in inorganic reactions with an emphasis on coordination chemistry.

222. Chemistry of the Nonmetals (2)
Prerequisite: Chemistry 127A.
An advanced systematic study of the nonmetallic elements and their compounds.

230. Advanced Topics in Organic Chemistry (Credit to be arranged)
Prerequisite: Chemistry 112.
Selected topics in organic chemistry. Maximum credit six units applicable on a master's degree.

231. Mechanisms of Organic Reactions (3)
Prerequisites: Chemistry 110B and 112.
Reactivity and mechanism in organic reactions.

232. Advanced Organic Chemistry (3)
Prerequisite: Chemistry 112.
Applications and limitations of organic reactions from the viewpoint of synthesis.

250. Advanced Topics in Analytical Chemistry (Credit to be arranged)
Prerequisite: Chemistry 110B.
Selected topics from the field of analytical chemistry. Maximum credit six units applicable on a master's degree.

260. Advanced Topics in Biochemistry (Credit to be arranged)
Prerequisite: Chemistry 116B.
Selected topics in biochemistry. Maximum credit six units applicable on a master's degree.

261. Advanced Biochemical Techniques (2)
Six hours of laboratory.
Prerequisite: Chemistry 116A.
The laboratory application of biochemical techniques in manometry, chromatography, electrophoresis, and enzymology.

270. Nuclear Chemistry (2)
Prerequisite: Chemistry 110B.
Theoretical applications of radioactivity to chemistry, radiation chemistry, decay laws and processes, nuclear structure and reactions.

290. Bibliography (1)
Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Research Seminar (1)
Prerequisite: Consent of department chairman.
Discussions on current chemical research by students, faculty, and visiting scientists. Each student will make a presentation based on the current literature.

297. Research (Credit to be arranged)
Prerequisite: Consent of instructor.

Research in one of the fields of chemistry. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

CHINESE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in Chinese are drawn from departments in the Division of Humanities.

Offered by the Division of Humanities
Courses in Chinese.

Major or minor work in Chinese is not offered.

LOWER DIVISION COURSES

1. Elementary (4)
Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Chinese culture and civilization, minimum essentials of grammar.

2. Elementary (4)
Four lectures and one hour of laboratory.

Prerequisite: Chinese 1.

Continuation of Chinese 1.

3. Intermediate (4)
Prerequisite: Chinese 2.

A practical application of the fundamental principles of grammar. Reading in Chinese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4)
Prerequisite: Chinese 3.

Continuation of Chinese 3. Reading of selections from Chinese literature.

COMPARATIVE LITERATURE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in comparative literature are drawn from departments in the Division of the Humanities.

All reading assigned for classes in comparative literature is in English translations, and no knowledge of any foreign language is required.

Major work is not offered in comparative literature; however, courses in this field may be used as part of the English major. For specific information, refer to English.

A minor is offered in comparative literature.

COMPARATIVE LITERATURE MINOR

The minor in comparative literature consists of from 15 to 22 units in comparative literature, nine units of which must be in upper division courses.

LOWER DIVISION COURSES

52A-52B. Masterpieces of World Literature (3-3) I, II

(Same course as English 52A-52B)

A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay.

70A-70B. Introduction to Oriental Literature (3-3)

Major writings in translation, with emphasis each semester on the literature of one oriental country.

UPPER DIVISION COURSES

101A-101B. Modern Continental Fiction (3-3)

(Same course as English 101A-101B)

Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

102A-102B. Greek and Latin Literature (3-3)

Masterpieces of ancient Greek literature the first semester, Latin literature the second.

115. The Bible as Literature (3) I

(Same course as English 115)

A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

138. Introduction to Aesthetic Appreciation (1) I

(Same course as Humanities 138)

Major forms of expression and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

140A-140B. Masterpieces of French Literature (3)

A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Moliere, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings.

142. The Golden Age of German Literature (3) I, II

Masterpieces of German literature from the eighteenth and early nineteenth centuries.

143. Masterpieces of Modern German Literature (3) I, II
Selected works in English translation by outstanding German writers, poets, and thinkers of the 19th and 20th centuries. Included are contributions by Hölderlin, E.T.A. Hoffmann, Heine, Keller, Hebbel, Nietzsche, Hauptmann, Rilke, Hesse, Th. Mann, Kafka, Werfel, Benn, Brecht, and others.

152A-152B. World Drama (3-3)
(Same course as English 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

170. Studies in Modern Oriental Literature (3)
Types of recent literature in translation, with emphasis on the writing of one oriental country. May be repeated once for additional credit with new material.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

ECONOMICS

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Emeritus: Cameron, Ryan

Professors: Anderson, G., Babilot, Barckley, Bridenstine, Flagg, Gifford, McClintic, Neuner, Turner, M. S. (Chairman)

Associate Professors: Jencks, Leasure

Assistant Professors: Chadwick, Patel, Poroy, Schrock, Venieris

Offered by the Department

Master of Arts degree with a major in economics. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in economics with the A.B. degree in liberal arts and sciences.

Minor in economics.

Teaching major in economics, with specialization in secondary teaching.

Teaching minor in economics, with specialization in secondary teaching.

ECONOMICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All the candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Two plans are provided for the major in economics: Plan A for those students expecting to pursue the study of economics beyond the A.B. degree; and Plan B for those students with a liberal arts interest, or for those who are interested in pre-legal education or a combined economics-business program.

PLAN A

Preparation for the major. Economics 1A-1B (or 103A-103B) and 2. Recommended courses in related fields: Mathematics 40 and 50.

Major. A minimum of 24 upper division units in economics to include Economics 104A-104B, 107, 109, and 197. Economics 103A-103B may not be used to fulfill minimal upper division requirements. Students may not receive credit for more than 30 upper division units in economics (in addition to Economics 103A-103B).

Minor. A minor is not required with this major; however, the student is strongly advised to take a minor in mathematics. Recommended courses are Mathematics 40, 50, 51, 52, 121A-121B, 140A-140B, and 150A-150B.

PLAN B

Plan B is a flexible program to meet the needs of several groups of students. Advisory programs of study are available in the Economics Department office for the following groups: (a) pre-law majors; (b) a broad-ranging liberal arts interest; and (c) a combined economics and business interest.

Preparation for the major. Economics 1A-1B (or 103A-103B) and 2. Students planning careers in law or business are advised to take at least one semester of accounting.

Major. A minimum of 24 upper division units in economics to include Economics 100A-100B. Six of the 24 units may be in a related field to be selected with the approval of the departmental Academic Requirements Committee. (Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.) Students may not receive credit for more than 30 upper division units in economics (in addition to Economics 103A-103B).

Minor. A minor is not required with this major.

ECONOMICS MINOR

The minor in economics consists of from 15 to 22 units in economics, nine units of which must be in upper division courses (except Economics 103A-103B).

ECONOMICS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Specialization in Secondary Teaching

Preparation for the major. Economics 1A-1B or 103A-103B, and 2. (9 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in economics to include Economics 100A-100B. Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.

Postgraduate Year. Six units of graduate courses in economics to be selected with the approval of the department adviser.

ECONOMICS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The minor in economics for secondary teaching consists of not less than 21 units to include Economics 1A-1B or 103A-103B and 15 upper division units in economics courses except 103A-103B selected with approval of the departmental adviser.

LOWER DIVISION COURSES

1A. Principles of Economics (3) I, II

An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon macro-analysis including national income analysis, money and banking, business cycles, and economic stabilization. Not open to students with credit in Economics 103A.

1B. Principles of Economics (3) I, II
Prerequisite: Economics 1A.
An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon the direction of production, the allocation of resources, and the distribution of income, through the price system (micro-analysis); and international economics. Not open to students with credit in Economics 103B.

2. Statistical Methods (3) I, II
Prerequisite: Mathematics 3 or qualification on the Mathematics Placement Examination.
Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

UPPER DIVISION COURSES

100A. Intermediate Economic Theory (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic theory with special reference to the theory of the firm and the industry; value and distribution.

100B. Intermediate Economic Theory (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic theory with special reference to national income analysis and the theory of investment.

101. History of Economic Thought (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
A study of the development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

102. Comparative Economic Systems (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
The economic aspects of laissez-faire and regulated capitalism, co-operatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

103A. Economic Principles, Institutions, and Policies (3) I, II
Prerequisite: Six units in political science, history, or sociology.
Income and employment theory and its applications. Not open to students with credit in Economics 1A. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

103B. Economic Principles, Institutions, and Policies (3) I, II
Prerequisite: Economics 103A or 1A.
Price theory and its applications. Not open to students with credit in Economics 1B. May not be used to fulfill minimal upper division requirements in the economics major or minor or special major.

104A. Micro-Economic Analysis (3) I
Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.
Mathematical interpretation of micro-economic theory. Credit will not be given for both 100A and 104A.

104B. Macro-Economic Analysis (3) II
Prerequisites: Economics 1A-1B (or 103A-103B) and Math 50.
Mathematical interpretation of macro-economic theory. Credit will not be given for both 100B and 104B.

105. Welfare Economics (3) II
Prerequisites: Economics 1A and 1B, or 103A and 103B, and 100A.
Economic welfare analysis; the economic and ethical conditions of optimum welfare arrangements; theoretical and empirical findings; social welfare functions and social planning.

107. Quantitative Economics (3) I, II
Prerequisites: Math 50 and Economics 1A-1B (or 103A-103B).
The quantitative approach to economic problems. Emphasis on the use of mathematics in economic analysis.

109. Advanced Economic Theory (3) II
Prerequisites: Economics 107, and either 100A-100B or 104A-104B.
Recent contributions to the advanced theory of the firm, consumer demand, employment and growth.

110. Economic History of Europe (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
A general survey of economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economies, especially on England's commerce and industry.

111A-111B. Economic History of the United States (3-3)
Prerequisites: Economics 1A and 1B or 103A and 103B.
American economic development and national legislation in the fields of agriculture, industry, and commerce. Semester I: 1600-1865. Semester II: 1865 to the present.

114. Economic Problems of Latin America (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic development, institutions, and problems of Latin America.

115. Economic Problems of South and East Asia (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic development, institutions, and problems of China, India and Pakistan, Japan, and Southeast Asia.

118. The Economy of the Soviet Union (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
The development, institutions, and problems of the Soviet economy.

119. Economic Problems of Africa and the Middle East (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic development, institutions, and problems of Africa and the Middle East.

131. Public Finance (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

133. Fundamentals of Finance (3) I, II
(Same course as Business Administration 127)
Prerequisites: Economics 1A and 1B, or 103A and 103B, and Business Administration 1A and 1B.
Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries. Government regulation of finance. The cost of capital.

135. Money and Banking (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

138. Urban and Regional Economics (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Analysis of major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

142. Business Cycles (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Analysis of fundamental factors in economic fluctuations. Examination of business cycle theories, and of various policy proposals for economic stabilization. A consideration of current economic conditions and an examination of methods employed in preparing national economic forecasts.

150. Labor Problems (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
A study of labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

152. Collective Bargaining (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

153. Comparative Labor Problems (3) I
Prerequisite: Economics 1A and 1B or 103A and 103B.
Comparative study of labor relations systems and labor movements in both advanced and developing nations. Individual study of a particular country of the student's choice.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Government and Business (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
General survey of governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies.

171. Transportation Economics (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economic impact of the availability and cost of transportation services. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.

172. Public Utilities (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

173. Economic Resources and Growth (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Resource requirements for continued growth in the American economy: Human resources; capital formation; energy, water and material resources. Effects of population increase. Factors determining resource growth and productivity. Impact of technological change. Current resource development policies.

174. Economic Concentration and Monopoly Power (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
The implications of economic concentration and monopoly. The evaluation of mergers, consolidations and other forms of monopoly power in terms of social and economic goals. Attempts to control monopoly power by antitrust laws, by policies regarding competitive practices and by other means.

175. Industry Studies (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Evaluation of the structure, conduct and performance of selected industries in terms of social and economic goals.

185. Social Insurance (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

190. International Economics—Principles (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
National welfare and foreign trade. Foreign exchange and the balance of payments, financing foreign trade. Regulations over trade and obstructing factors. Doctrines of international trade.

195. International Economics—Problems (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
International economic conflict and cooperation, international economic communities (common markets), international economic conferences and organizations.

196. Economics of Underdeveloped Areas (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
The nature and causes of economic underdevelopment. An analysis of problems of and policies for the economic development of underdeveloped areas of the world.

197. Research Design and Method (3) II
Prerequisites: Economics 2 and 107.
Instruction in the practical application of the various techniques of economic research to a range of problems typically encountered in the economics profession; sources and limitations of basic data, survey research, industry studies, economic forecasting, national impact studies, area and regional studies.

198. Investigation and Report (3) I, II
Open to economics majors only.
Independent study and investigation. Guidance in the collection, organization, and presentation of factual material. May be repeated for a maximum of six units; maximum credit in 198 and 199 limited to six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200A-200B. Seminar in Advanced Economic Theory (3-3)
Prerequisite: Economics 109.
Individual research, seminar reports, group discussions of problems in economic theory.

201A-201B. Seminar in the Development of Economic Thought (3-3)
Prerequisites: Twelve units in economics.
A critical study of the development of economic thought.

202. Seminar in Comparative Economic Systems (3)
Prerequisites: Economics 102 or 115 or 118.
Topics in comparative economic systems; the Soviet economy, the economy of Communist China, and related subjects.

203. Economic Analysis (3)
Prerequisite: Classified graduate standing.
The theory of the firm in a market economy. Not open to students with credit in Economics 100A-100B; not applicable toward a master's degree in economics.

210. Seminar in Economic History (3)
Prerequisite: Economics 110 or 111A or 111B.
Individual study and group discussion on selected topics in economic history.

231. Seminar in Public Finance (3)
Prerequisite: Economics 131.
Advanced study of public finance problems and literature; research.

235. Seminar in Money and Banking (3)
Prerequisite: Economics 135.
Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system.

238. Seminar in Urban and Regional Economics (3)
Prerequisite: Economics 138.
Urban and regional economics; individual research and reports.

241. Econometrics (3)
Prerequisite: Economics 197.
Measurement in economics. The construction and testing of econometric models. Emphasis on the adaptation of statistical analysis to economics. Estimating demand, supply, and the marginal propensity to consume; forecasting national income.

250. Seminar in Labor Economics (3)
Prerequisites: Economics 150 or 151 or 152 or 153.
Individual study and group discussion of selected topics in labor economics.

253. Comparative Labor Seminar (3)
Prerequisite: Economics 150 or 153.
Research in comparative labor problems, including problems of labor and social legislation, medical economics, poverty problems, labor force structural problems, and international labor movements.

272. Seminar in Utilities and Water Resources (3)
Prerequisite: Economics 172 or Economics 173.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.

274. Seminar in Economic Concentration and Monopoly Power (3)
Prerequisites: Economics 174 or both Economics 170 and 100A.
Selected topics in the field of economic concentration and monopoly.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.

295. Seminar in International Economics (3)
Prerequisites: Economics 190 or 195 or 196.
Individual and group research into selected topics; group discussion of procedures and results.

296. Seminar in the Economics of Underdeveloped Countries (3)
Prerequisite: Economics 196.
Theories regarding underdevelopment and policies for development of economically underdeveloped countries.

297. Research (3)
Prerequisites: Classified graduate standing and consent of instructor.
Independent research project in an area of economics.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a thesis for the master's degree.

EDUCATION

IN THE SCHOOL OF EDUCATION

(Member of the American Association of Colleges for Teacher Education)

Faculty

Emeritus: Corbett, Hammack, E., Hammack, I., Kinder, Madden, R., White

Professors: Alcorn, Anderson, E., Anderson, P., Apple, Baker, D., Ballantine, Briggs, Bruce, Brydegaard, Crum, Falk, Fishburn, Fisher, Friedrich, Fulkerson, Gates, Gega, Gray, Groff, Hill, W., Houseman, Hunter, Lapray, Lienert, Linley, Malcolm, Nardelli, Person, Petteys, Platz, Prouty, Schmidt, Schrupp (Dean), Schunert, Singer, Smith, H., Strand, Trimmer, Wetherill

Associate Professors: Bacon, G., Erickson, Halfaker, Holt, Huls, Inskeep, Kendall, Miller, R., Ross, Rowland, Servey, Smith, R. D., Strom, Tossas, Wilding

Assistant Professors: Anderson, A., Anthony, Becklund, Blanc, Bradley, Carnevale, Clark, M., Collica, Cummins, E., Fearn, Ford, Holman, Kaatz, Kamali, Levenson, LuPone, McClard, McCoy, L., Melton Mitchell, A., Palomares, Sanner, Schroeder, Stautland, Steckbauer, Walsh, Yesselman

Lecturers: Ashworth, Butzine, Grant, Hammons, Jones, B. M., Matthews, Maxwell, B., Moore, D., Rezek, Shimmin, Wall, Whittemore

IMPERIAL VALLEY CAMPUS

Faculty

Professor: Rodney (Director)

Associate Professors: Charles, Ikeda

Assistant Professors: Baldwin, Franklin, Gast, Harmon, Millhizer, Smith, A. C., Weeter, Woznicki

Lecturers: Hammond, Merchant

Offered by the School of Education

Master of Arts degree in education with concentrations in ten areas and a Master of Science in counseling. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

B.E. degree. (Described in the section on the School of Education.)

B.V.E. degree. (Described in the section on the School of Education.)

Teaching credentials in all areas. Refer to the section on the School of Education.

LOWER DIVISION COURSES

A. Review of Arithmetic (0) I, II

H. Review of Handwriting (0) I, II

R. Review of Reading (0) I, II

S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to elementary teacher education.

UPPER DIVISION COURSES

Social Foundation

100. The Secondary School (4) I, II
Prerequisite: To be taken concurrently with Education 180B.
American Education in its social and historical setting. The secondary school curriculum, the philosophies, issues, and social forces that influence the school. Not open to students with credit in Education 101 or 102.

101. History and Philosophy of Education (2) I, II, Summer
Prerequisites: Senior standing and a minimum of 12 units in education.
Historical backgrounds and underlying philosophies upon which the public school system has been established. Emphasis on the meaning of education, educational aims and values, and democracy and education. Not open to students with credit in Education 100.

102. Secondary Education (3) Irregular
An introduction to understanding the development of secondary education and its present status as a social institution. Not open to students with credit in Education 100.

104. European Education and Cultural Change (3) II
Tradition and change in contemporary European education with special reference to England, France, Germany, and the U.S.S.R.

Psychological Foundations

110. Psychological Foundations of Education for Secondary Teachers (5) I, II
Prerequisites: Admission to Teacher Education and education program approved by the Coordinator of Secondary Education. To be taken concurrently with Education 180A and Audio-Visual laboratory checkout.
The nature of growth and development, principles and theories of learning, guidance practices, test and measurements. Not open to students with credit in Education 112 or 113. (Formerly entitled: Development and Learning.)

111. The Learner in the Elementary School (3) I, II, Summer
Prerequisites: Psychology 1 and admission to Elementary Education.
Intellectual, emotional, social, and physical development during childhood and early adolescence, including basic principles of child guidance and counseling. Directed observation required. (Formerly Education 112, Child Growth and Development.)

112. The Learning Process in the Elementary School (3) I, II, Summer
Prerequisite: Education 111.
Psychological principles for effective classroom teaching; techniques of measurement and evaluation for the diagnosis and improvement of learning. (Formerly Education 111, Educational Psychology.)

113. Growth and Development of the Adolescent (3) Irregular

Study of adolescent physiological, psychological, social, and emotional development, including principles of mental hygiene and guidance. Field work with adolescent groups in the community is required. Not open to students with credit in Education 110.

114. Interpretation of Early Childhood Behavior (3) Irregular in Summer

For kindergarten-primary teachers treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

115. Guidance in Elementary Education (3) I, II, Irregular

A study of the basic principles of guidance and their function in the educational process as applied in the elementary school.

118. Supervision of Child Welfare and Attendance (3) Irregular

Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

Methods—Secondary

120. The Teaching Process (3) I, II

To develop teacher competency at the secondary level in professional and community relationships; in general methods and materials; in planning for teaching; and in evaluating learning activities.

121. Methods and Materials of Instruction: Major (2) Minor (2) except Education 121Q (3)

Lecture courses, except that Education 121K and 121N meet for one lecture and three hours of laboratory.

Professional courses in specific teaching fields taken concurrently with directed teaching. Each course emphasizes the application of best practices with reference to each subject area named.

Subject fields for section 121 are as follows:

Offered in the Fall Semester

121A. Methods in Art
121B. Methods in English
121C. Methods in Home Economics
121D. Methods in Industrial Arts
121E. Methods in Foreign Languages
121F. Methods in Mathematics
121K. Methods in Physical Science
121L. Methods in Speech Arts
121M. Methods in Social Science
121N. Methods in Life Science
121Q. Methods in Business Skills
121V. Methods in General Science

Offered in the Spring Semester

121B. Methods in English
121D. Methods in Industrial Arts
121F. Methods in Mathematics
121K. Methods in Physical Science
121M. Methods in Social Science
121N. Methods in Life Science
121V. Methods in General Science

Offered Irregularly

121P. Methods in Health Education
121H. Methods in Phys. Ed. (Men)
121J. Methods in Phys. Ed. (Women)
121R. Methods in Choral Music
121S. Methods in Instrumental Music

122. Reading in Secondary Education (3) Irregular

The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

123. Organization and Operation of the Reading Laboratory (3) I, II

Lectures and laboratory to eight hours per week.

Prerequisite: Education 122.

Problems and techniques in organizing and operating the reading laboratory in secondary schools and colleges; current research and laboratory experiences.

126. Workshop in Secondary Education (3 or 6) Summer
Designed to meet the needs of individuals or groups of teachers who wish to develop or continue the study of some problem with the consultation of the college staff and the San Diego County Curriculum Staff.

Methods—Elementary

130. First Elementary Education Practicum (6)
Three lectures and two hours of activity.

Prerequisite: Concurrent registration in Education 111, or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed A through C below.

130A. Arithmetic (2 or 3) I, II, Summer

130B. Language Arts (2 or 3) I, II, Summer

130C. Student Teaching (2) I, II

131. Second Elementary Education Practicum (6)
Three lectures and two hours of activity.

Prerequisites: Education 111 and 130; concurrent registration in Education 112 or consent of Coordinator of Elementary Education.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through C below.

131A. Reading (2 or 3) I, II, Summer

131B. Social Studies (2 or 3) I, II, Summer

131C. Student Teaching (2 to 4) I, II

132. Third Elementary Education Practicum (10)
Four lectures and four hours of activity.

Prerequisites: Education 112 and 131.

Curriculum, principles, methods, and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through D below.

132A. Science (2 or 3) I, II, Summer

132B. Art (2 or 3) I, II, Summer

132C. Music (2 or 3) I, II, Summer

132D. Student Teaching (4 to 8) I, II

133. Children's Literature in Elementary Education (3) Irregular
A survey of children's literature with an emphasis upon the selection and use of material in the elementary classroom.

134. Laboratory in Elementary Education (3) Summer
A general course in observation and theory, including a study of arithmetic, reading, language, music, science, social studies, art, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

135. Workshop in Elementary Education (3 or 6) Irregular
To meet the needs of individual or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should correspond with the Coordinator of Elementary Education, San Diego State College.

136. Modern Foreign Languages in Elementary Education (3) Irregular

Prerequisites: French or German or Spanish: (1964-65) courses 1, 2, 10, 11, or equivalents; (1965-1966) courses 1, 2, 3, 10, 11, or equivalents; (1966-1967) courses 1, 2, 3, 4, 10, 11, or equivalents.

Methods of teaching modern foreign languages in the elementary school, emphasizing the audio lingual approach. Students will produce materials and learn to use tapes, film strips, records, films, language laboratories, and written materials.

137. Reading Difficulties (3) I, Summer

Prerequisites: Education 112 and 131A or 122.

Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

138. Curriculum in Elementary Education (3) Irregular

Emphasis upon the selection and development of content, teaching methods, and materials as they relate to social needs; evaluation procedures; psychological principles, and the nature of the learner.

139. Kindergarten-Primary Practicum (2) I, II; (3) Summer

The theory of early childhood education and the materials and teaching techniques used in the kindergarten. This course must be taken concurrently with Education 132C when the student teaching assignment is in the kindergarten.

Audiovisual

140. Audiovisual Instruction (3) I, II, Summer

Three lectures and two hours of laboratory.

Audiovisual materials and techniques as they affect learning; operation of equipment.

141. Creating Audiovisual Materials for Classroom Use (3) Irregular

Prerequisite: Education 140.

Practice in the creation and evaluation of instructional materials, such as 35 mm. filmstrips, 16 mm. films, scripts, recordings and other audiovisual materials.

143-S. Workshop in Educational Television (6) Summer

(Same course as Speech Arts 143-S)

Open to teachers and students interested in instruction by television.

The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

144. Application of Programed Instruction (3) Irregular

Prerequisite: Education 112 or 110, or Psychology 175.

Application of programed instructional materials to the teaching process, i.e., punch and strip devices, programed texts, teaching machines. Selection, evaluation, and utilization of programed materials in team-teaching and other new instructional systems. Individual preparation of instructional programs; laboratory practice.

151. Measurement and Evaluation in Elementary Education (3) I, II, Summer

Should follow Education 112 for elementary credential candidates.

The use of intelligence and achievement tests in the diagnosis and improvement of learning; construction of objective examinations; problems of evaluation in education; the elements of statistical techniques.

152. Measurement and Evaluation in Secondary Education (3) Irregular

Problems of evaluation in secondary education, construction of examinations, elements of statistics, selection and interpretation of standardized measures. Not open to students with credit in Education 120.

153. Quantitative Methods in Educational Research (3) I, II

Prerequisite: Mathematics 12 or equivalent.

Basic tests of statistical significance with special reference to the interpretation of educational data.

Honors Course

166. Honors Course (Credits to be arranged) I, II
Refer to the Honors Program.

Exceptional Children

161. Measurement and Evaluation in Special Education (4) II
Three lectures and 3 hours of laboratory.
Prerequisites: Education 120; 151 or 152; and Psychology 105.
Consideration of representative tests and evaluation procedures appropriate to the several areas of exceptionality; problems in psycho-educational diagnosis and appraisal; assembling and utilizing test results for the educational and/or rehabilitation program.

162. Emotionally Disturbed Children and Youth (3) I, Summer
Prerequisite: Education 167.
Nature, needs and problems of emotional deviates; survey of settings and roles of those who help, and ways they help.

163. Curriculum and Methods for Teaching Emotionally Disturbed Children and Youth (3) II or Irregular
Prerequisites: Education 162 or 167.
Selection, organization and presentation of curricular materials for emotionally disturbed children and youth.

164. Education of the Neurologically Handicapped (3) I
Prerequisites: Education 167 and Psychology 109.
Educational and psychological problems of brain-injured children and youth; identification procedures; educational programs, instructional methods, preparation of materials.

167. Exceptional Children (3) I, II, Summer
Characteristics and adjustment problems of mental, physical, and emotional deviates.

168. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II, Summer
Prerequisite: Psychology 109 or Education 167.
Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the elementary level. (Recommended for students with specialization in Elementary Teaching.)

169. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) I, Summer
Prerequisite: Psychology 109 or Education 167.
Selection, organization, and presentation of curricular materials for mentally retarded children at all levels of the public schools. Concentration will be on the secondary level. (Recommended for students with specialization in Secondary Teaching.)

170. Workshop in Special Education (6) Summer
Curriculum and methods of teaching in an area of exceptionality; observation of demonstration class; development of materials of instruction. May be repeated once in a second area of exceptionality. Not more than six units may be used for any degree.

171. Practicum in Mental Retardation (2) II
Prerequisites: Admission to Special Education, and Psychology 109 or concurrent registration.
Supervised observation and participation in classroom and related school activities for mentally retarded. Course work includes discussion, analysis, and reports of observations.

172. Counseling Exceptional Children (3) I, Summer

Prerequisites: Education 110 or 112, and Education 167 or Psychology 109 or Speech Arts 170.

Educational, mental, social, and vocational counseling of exceptional individuals and their parents. Interrelationships of home, school, and community agencies.

173. Education of the Severely Mentally Retarded (3) II, Summer

Prerequisites: Education 167 and Psychology 109, and admission to Special Education.

Organization and planning of instructional activities; materials and equipment; utilization of resources, records, and reports; and classroom management of those under 50 IQ and those with neurological impairments.

174. Principles and Methods of Speech Correction (3) I

(Same course as Speech Arts 174)

Prerequisites: Speech Arts 100 and 170, or consent of instructor.

Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

176. Stuttering and Neurological Disorders (3) I

(Same course as Speech Arts 176)

Prerequisites: Speech Arts 100 and 170.

Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiometry (3) I

(Same course as Speech Arts 171)

Prerequisite: Consent of instructor.

Anatomy, physiology, and psycho-physics of the human ear, theories of hearing, medical aspects, pathology, audiometric techniques with practice, including tuning fork assessment, pure tone screening techniques, discreet frequency, pure tone threshold testing, play audiometry, and speech audiometric procedures. Meets audiometric certification requirement.

178. The Teaching of Lipreading (3) II

(Same course as Speech Arts 178)

Prerequisite: Education 177 or Speech Arts 171.

History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

Student Teaching

180A-180B. Directed Participation, Secondary (1-1) I, II

Prerequisite: To be taken concurrently with Education 100 and Education 110.

A comprehensive orientation to a secondary school with directed observation and participation in the classroom.

180C-180D. Directed Teaching Secondary (3-3) I, II

Prerequisites: Concurrent registration in Education 252 is required for Education 180C. Any grade below C is unacceptable for a credential.

Systematic observation, participation, and teaching under supervision in a junior or senior high school. A weekly seminar or conference is required.

181. Directed Teaching—Elementary (2-12) I, II

Prerequisites: Admission to teacher education and education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.

Systematic observation, participation and teaching under supervision in the Campus Elementary School or affiliated elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

182. Directed Teaching—Mentally Retarded (4) I, II
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

183. Directed Teaching—Library Practice (2-4) I, II
Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in library science.
Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. During each semester of student library work a weekly conference period is required as indicated in the time schedule.

184. Directed Teaching—Speech Correction (4) I, II
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

185. Directed Teaching—Hearing Impaired (4)
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of hearing impaired.

Conference and Special Courses

190. Conference on the Teaching of Mathematics (1) Summer
May be taken three times for credit.
Lectures, discussions, and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors, and administrators interested in current developments in this area.

191. Guidance Conference (1) Summer
Prerequisite: Consent of director of the conference. Course may be taken three times for credit.
A series of lecture and discussion sessions centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area.

192. Audiovisual Conference (1) Summer
May be taken three times for credit. Course does not fulfill credential requirement.
A series of lectures, discussions and demonstrations, centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives, and others interested in current developments in this area.

199. Special Study (1-6) I, II, and Summer
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor. Open only to senior and graduate students in education who have shown ability to work independently.

EXTENSION COURSES

X-116A—116B—116C. Child Study Laboratory (3-3-3) I, II
Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Education X-116A is prerequisite to X-116B, and X-116B is prerequisite to X-116C.

X-197. Problems in Education (Credit to be arranged) Extension
Prerequisite: Consent of instructor.
Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension.

GRADUATE COURSES

Prerequisites for All Graduate Courses

For requirements for admission to graduate courses, refer to the section of this catalog on the Graduate Division. In addition to these general requirements, 12 units of professional education courses are prerequisite for enrollment in all graduate courses in education except Education 201, 223 and 251, which require special clearance from the Coordinator of Junior College Programs.

Sociological Foundations

201. The Junior College (2) I

Fieldwork, including observation and audiovisual experiences required.

Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the junior college. Relation of the junior college to elementary and secondary schools and to four-year colleges.

202. Social Foundations (2 or 3) I, II, Summer

Prerequisite: Education 131C.

Sociological, historical, and philosophical foundations of American Education and their influences on present day educational practices.

204. Comparative Education (3) I, Summer

The contemporary educational ideas and practices of various countries of the world and their impact upon our culture and education.

205. History of Education (3) Irregular

Prerequisite: Education 100 or 101.

Advanced study of the history of education with emphasis on educational practices as related to present day problems.

206. Philosophy of Education (3) Irregular

Prerequisite: Education 100 or 101.

Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems.

207. Educational Sociology (3) Irregular

Prerequisite: Education 100 or 101.

A study of the social, economic, political and moral setting in which present day American education functions.

208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6) Summer

Prerequisite: Teaching experience.

Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants.

Procedures of Investigation

211. Procedures of Investigation and Report (3) I, II, Summer

Research methods in education. Location, selection, and analysis of professional literature. Methods of investigation, data analysis, and reporting. Required of all applicants for advanced degrees in education. (Formerly Education 290A-290B.)

212. Educational Research Design (3)

Prerequisite: Education 211.

Principles and methods of planning and conducting systematic investigations of educational problems—including historical, descriptive, and experimental methods of research. Practice in the definition of problems, formulation of hypotheses, construction of samples, control of variables, and interpretation of results.

213. Advanced Quantitative Methods in Educational Research (3)

Prerequisite: Education 153 or equivalent.

Application of correlation and tests of significance, including nonparametric and multivariate techniques, to research designs in such areas as curriculum, human development, student learning, counseling, and administration.

Educational Psychology

220. Advanced Educational Psychology (3) I, II, Summer

Prerequisite: Education 110 or 112.

Advanced study of research and its application to learning and human growth.

221. Seminar in Educational Measurement (3) Summer

Prerequisite: One of the following: Education 150, 151, or 152.

Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests.

222. The Gifted Child (3) I, Summer

Prerequisites: Education 110, or 111 and 112.

The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

223. Educational Psychology: Junior College (2) I

Fieldwork required.

Prerequisite: Credit or concurrent registration in Education 201.

The nature of the junior college student; the learning process including contributions of audiovisual materials. The functions of student personnel services in the junior college.

Guidance

224. Administration of Pupil Personnel Services (3) I, II, Summer

Prerequisite: Education 230.

The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare. (Formerly Education 234.)

225A-225B. Determinants of Pupil Behavior (3-3) I, II

Prerequisite: Education 110, or 111 and 112.

Implications of selected research findings in behavioral sciences for the understanding of pupil behavior. Education 225A will deal with the psychological and psycho-physiological research; 225B with social, cultural, and linguistic research.

226. Guidance Services in Public Education (3) I, II, Summer

Prerequisite: Education 110, or Education 111 and 112.

Historical, philosophical, and legal bases of the pupil personnel services; staff roles and relationships in a variety of organizational patterns.

229. Workshop in Pupil Personnel Services (3) Summer

Prerequisites: Teaching experience and consent of director of the workshop.

Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized. (Formerly Education 239.)

230. Guidance Problems in Secondary Education (3) I, II, Summer

Prerequisite: Education 110 or equivalent, and student teaching or teaching experience.

The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

231. Theory and Process of Pupil Appraisal (4) I, II

Three lectures and three hours of laboratory.

Prerequisites: Education 225A, 225B, and 226.

Measurement theory and procedures, including interpretation of test results to pupils, parents, and teachers. (Formerly entitled: Techniques of Pupil Appraisal.) Not open to students with credit in Education 237.

232. Theory and Process of Vocational Choice (4) I, II

Three lectures and three hours of laboratory and/or field work.

Prerequisites: Education 225A, 225B, and 226.

Vocational choice theory, occupational and educational materials used in career planning. Not open to students with credit in Education 237.

233. Theory and Process of School Counseling (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Education 225A, 225B, and 226.
Counseling theory and techniques, interviewing and case study methods. Supervised practice in interviewing school age pupils, analyzing interviews, and writing reports. Not open to students with credit in Education 238 or Psychology 152.

234. Theory and Process of Group Work in Guidance (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Education 225A, 225B, and 226.
Group process and individual growth, theories of group interaction, group therapy, and group leadership techniques: applications for the school setting. Not open to students with credit in Education 238.

237. Measurement and Information in Guidance (6) Summer
Five units of lecture and one unit of laboratory.
Prerequisites: Education 225A, 225B, and 226. Application to enter the course must be made early during the preceding semester
Measurement theory, interpretation of test results, vocational choice theory, occupational and educational information in career planning. Not open to students with credit in Education 231 or 232.

238. School Counseling: Individual and Group (6) Summer
Five units of lecture and one unit of laboratory.
Prerequisites: Education 225A, 225B, and 226. Application to enter the course must be made early during the preceding semester
Counseling theory and techniques, individual and group. Not open to students with credit in Education 233 or 234.

239A-239B. Professional Seminar in Guidance (3-3)
Prerequisites: Education 211; six units from Education 231, 232, 233, and 234 or equivalent; and advancement to candidacy for the Master of Science degree in counseling.
Study of selected areas in counseling and guidance culminating in a written project with emphasis on research and on counseling as a profession.

Elementary Education

240. Curriculum Construction and Evaluation in Elementary Education (3) I, II, Summer
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of the research in curriculum development, construction, and evaluation.

241. Seminar in Arithmetic in Elementary Education (3)
Prerequisite: Credit or concurrent registration in Education 211.
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.

242. Seminar in Reading in Elementary Education (3)
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of trends in reading instruction. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems.

243. Seminar in Social Studies in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

244. Seminar in Language Arts in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 211.
Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field.

245. Seminar in Elementary Education (3) Irregular

Prerequisite: Credit or concurrent registration in Education 211.

A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects.

246. Advanced Diagnosis in Reading (3) I, Summer

Prerequisites: Psychology 204 and Education 137.

Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments of diagnosis.

247. Advanced Diagnosis and Treatment of Learning Difficulties (3) II, Summer

Prerequisites: A teaching credential and Education 151 or 152.

Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.

248. Seminar in Science in Elementary Education (3)

Prerequisite: Credit or concurrent registration in Education 211.

Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.

Secondary Education

250. Curricular Problems in Secondary Education (3)

Prerequisite: Student teaching or teaching experience.

Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.

251. Instructional Methods and Materials: Junior College (2)

Prerequisites: Education 223 and concurrent registration in Education 316.

The teaching process at the junior college level, including lesson planning, utilization of audiovisual and other instructional materials and procedures of evaluation.

252. Seminar for Student Teachers (3)

Prerequisites: Education 110 and 100. To be taken concurrently with Education 180C.

Advanced study in the application of principles and research related to planning instruction, selecting and using materials, evaluating instruction and pupil progress, maintaining class morale; school law and finance for classroom teachers.

253. Supervision of Student Teaching (2)

Open to experienced teachers interested in the teacher education program.

Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement.

254. Advanced Problems in Secondary School Instruction (3) II, Summer

Prerequisites: Teaching experience and consent of instructor.

An analysis of the scientific research and philosophical principles in secondary school instruction.

255A. Advanced Curriculum and Instruction in Mathematics (3)

Prerequisite: Education 121F and teaching experience.

Factors directing the changing mathematics curriculum; recent trends and current research in the teaching of secondary mathematics.

255B. Advanced Curriculum and Instruction in Social Science (3)

Prerequisite: Education 121M and teaching experience.

Theories of content selection; social pressures which affect curriculum design; current research in curriculum development; trends in teaching techniques and materials.

255C. Advanced Curriculum and Instruction in English Language and Composition (3)

Prerequisites: English 191, 192, 193, Education 121B, and teaching experience.

Problems in the teaching of English language structure and composition skills in secondary schools; recent trends and current research.

255D. Advanced Curriculum and Instruction in Literature (3)

Prerequisites: Education 121B, 12 units of literature, and teaching experience.

Problems of selection, presentation, motivation, and evaluation in the teaching of literature in secondary schools; techniques of reading in the genres; recent trends and current research in the teaching of literature.

256. Recent Trends in Secondary Curriculum (3) Irregular

Prerequisites: 12 units in secondary education and consent of instructor.

Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

257. Workshop in Intercultural Education (4) Summer

Enrollment only by application to the Dean of Education.

A cooperative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricula and instructional materials and techniques.

258. Research in Curricular Problems (1-3) Irregular

Admission by consent of the Coordinator of Secondary Education and the instructor.

Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

School Administration and Supervision

260. Principles of School Administration (3) I, II, Summer

Federal, state and local school administrative relationships including the financial and legal structure at these three levels.

261. Education Leadership (3) I, II, Summer

Prerequisites: Standard Teaching Credential and consent of instructor.

Concepts and techniques of leadership, analysis of the factors and practice in the procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision.

262. Legal and Financial Aspects of School District Policies (3)

Prerequisites: Standard Teaching Credential

Relationship of the school district to attendance units. The legal basis for policy formation in the selection and retention of certificated personnel, in the admission and assignment of pupils, in the instructional programs and in related budgetary considerations.

263. Curriculum Development and Evaluation (3) I, II, Summer

Prerequisites: Standard Teaching Credential and consent of instructor.

Curriculum development in both elementary and secondary schools, with emphasis on interrelationships between these levels, responsibilities of curricular and supervisory personnel, and use of research.

264A-264B-264C. Seminar in Elementary School Administration and Supervision (2-2-2) I, II, Summer

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

Analysis of theories and practices in the administration and supervision of the elementary school.

265A-265B-265C. Seminar in Secondary School Administration and Supervision (2-2-2)

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

Analysis of theories and practices in the administration and supervision of the secondary school.

266A-266B-266C. Field Experience in Elementary School Administration and Supervision (1-1-1)

Prerequisite: Concurrent registration required in Education 264A, 264B, 264C.

Field experience in the elementary schools. Approval of local school district required in the semester prior to registration.

267A-267B-267C. Field Experience in Secondary School Administration and Supervision (1-1-1)

Prerequisite: Concurrent registration required in Education 265A, 265B, 265C.

Field experience in the secondary schools. Approval of local school district required in the semester prior to registration.

268. Seminar in School Administration and Supervision (3)

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.

School administration and supervision in a specialized field, such as the junior college, a subject field, or designated services. Field experience required. May be substituted for Education 264C or 265C.

270. Seminar in Education of Exceptional Children (3)

Prerequisite: Education 167.

Principles, trends and research in the education of exceptional children.

271. Seminar in Emotionally Disturbed Children and Youth (3)

Prerequisites: Education 162 or 163, and 270.

Advanced study of the theories, principles and practices in working with emotionally handicapped.

272. Seminar in Education of the Gifted (3)

Prerequisite: Education 222.

Review of studies and investigation in learning and adjustment of the gifted, including assessment, classification, curriculum provisions, and social and emotional adjustment.

273. Seminar in Education of the Mentally Retarded (3) II

Prerequisites: Education 168 or 169 and Psychology 109.

Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis, and assessment.

274A. Utilizing Audiovisual Materials in the Classroom (3) I, Summer

Prerequisite: Education 140.

A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education.

275. Administering the Use of Audiovisual Materials (3) II, Summer

Prerequisite: Education 140.

Organizing, supervising, and coordinating audiovisual centers as an integral part of educational systems.

276. Seminar in Programed Instruction (3 to 6) Irregular

Prerequisite: Education 144.

Theories of programed instruction, with emphasis on construction of programs; application to teaching situations. Analysis and revision of programed projects.

280. Legal and Financial Aspects of School District Management (3) Irregular
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

Principles and practices of law and finance as an aspect of school business administration, school plant planning and development, and the operation and maintenance of school facilities and services.

281. School-Community Relationships (3) Irregular
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

Sociological aspects of school administration with particular emphasis on broad social policy, contemporary issues, community-school relationships, other social and service agencies of the community.

282. School District Personnel Management (3) Irregular
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

Personnel relationships to include administrative relationships with the Board of Education and the school staff. Central office personnel procedures including recruitment, employment, placement, evaluation, promotional and training procedures.

283. District Curriculum Development, Evaluation and Improvement (3) Irregular
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.

School District curricular development from kindergarten through junior college, relationships of the superintendent and central administrative staff to regular staff and supervisory staff.

284. Advanced Seminar in School Administration and Supervision (3) Irregular
Prerequisites: Standard Teaching Credential, Education 280, 281, 282, 283, and consent of instructor.

An intensive study of a selected area in school administration and supervision. May be repeated with new content for additional credit to a maximum of nine units. Typical courses in this area are School Law, School Finance, School Supervision, Personnel Procedures.

286A-286B. Seminar in School Building Construction and Utilization (3-3) Irregular
Prerequisite: Possession of Standard Administration or Supervision Credential, or consent of instructor. Completion of or concurrent registration in Education 286A is prerequisite to 286B.

School building construction and utilization: the development of new facilities from the planning stage to complete utilization; remodeling.

Special Study and Research

295A-295B. Seminar (3-3) I, II, Summer
Prerequisites: Education 211 and advancement to candidacy for the master's degree in education.

An intensive study in selected areas of education culminating in a written project. Limited to students following Plan B for the Master of Arts degree in education.

298. Special Study (1-6) I, II, Summer
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II, Summer
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316. Directed Teaching Junior College (4) I, II

Prerequisites: Admission to Teacher Education and approval of the Junior College program coordinator. Credit in Education 201 and 223 and concurrent registration in Education 251.

Systematic observation, participation, and teaching under supervision in a junior college. Any grade below C is unacceptable for a credential. A weekly seminar or conference is required.

330. Guidance Internship (2-6) I, II, Summer

Application to take the course should be made early during the preceding semester.

Supervised internship experience in pupil personnel activities with school age pupils. May be repeated with new content for additional credit.

331. Field Work in School Guidance (2-6) I, II

Prerequisites: Education 231, 232, 233, and 234.

Application of concepts and procedures of pupil personnel services in public schools. Daily observation and practice. Weekly seminar sessions with college staff.

332. Practicum in School Counseling (3) I, II

Prerequisites: Education 231, 232, 233, and 234. Application to take the course must be made early during the preceding semester.

Supervised experience in group and individual counseling and career planning with school age pupils. Not open to students with credit in Education 333.

333. Advanced Seminar and Practicum in Counseling (6) Irregular and Summer

Prerequisites: Education 237 and 238. Application to take the course must be made early during the preceding semester.

Supervised experience in group and individual counseling and career planning with school age pupils, and study of current problems, issues, and research. Not open to students with credit in Education 239 or 332.

360. Internship in School Administration and Supervision (3 to 6) I, II

Prerequisites: Standard Teaching Credential and consent of instructor.

Internship for prospective school administrators in the public schools. Released time, permission of school district, and pre-registration with Coordinator of Program of Educational Administration previous semester required.

371. Directed Internship—Mentally Retarded (4) I, II

Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

374. Directed Internship—Speech Correction (4) I, II

Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

375. Directed Internship in Audiovisual Education (2-6) I, II

Application to take the course should be made during the preceding semester.

Supervised internship experience in audiovisual services in the public schools.

ENGINEERING

IN THE SCHOOL OF ENGINEERING

(The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering, is accredited by the Engineers' Council for Professional Development)

Faculty

Professors: Bedore, Capp (Dean), Fitz, Johnson, P., Lodge, Morgan, Quiett, Rao, Shutts, Stone, S., Walling

Associate Professors: Bauer, Conly, Dharmarajan, Noorany, Stone, H.

Assistant Professors: Bilterman, Brown, W. L., Chan, Chang, Lin, McGhie, Murphy, R., Ohnysty, Skaar, Stratton

Offered by the School of Engineering

Master of Science degree in aerospace, civil, electrical, and mechanical engineering. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major with the B.S. degree in engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering. (Described in this section on the School of Engineering.)

Minor in engineering. (Described in the section on the School of Engineering.)

LOWER DIVISION COURSES

A. Introduction to Engineering (1)

A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession.

1. Engineering Drawing (2) I, II

Six hours of laboratory.

No prerequisite.

Development of skills and techniques of drawing for engineers. Elementary orthographic and pictorial drawing theory. Introduction to basic theorems of descriptive geometry. Theories of size description.

2. Plane Surveying (3)

One lecture and six hours of laboratory.

Prerequisite: Mathematics 21 or 40.

Use, care, and adjustment of surveying equipment. Introduction to standard procedures, techniques of plane surveying, and plane table mapping.

20. Engineering Graphics (2) I, II

Six hours of laboratory.

Prerequisites: Credit or concurrent registration in Mathematics 40 or equivalent, and either Engineering 1 or qualification on the Engineering Graphics Placement Examination.

Graphic communication for engineers. Presentation and interpretation of engineering plans, using both standard projection systems and freehand sketching. Introduction to nomography; graphic presentation and analysis of data.

25. Engineering Materials (3) I, II

Prerequisite: Chemistry 1A.

Atomic and molecular structure of materials utilized in engineering. Analysis of the relationships between structure of materials and their mechanical, thermal, electrical, corrosion and radiation properties, together with examples of specific application to engineering problems.

30. Engineering Measurement Analysis (2) I, II

Prerequisites: Mathematics 51 and Physics 4A.

Introduction to basic standards and units of engineering measurement. Analysis of errors in measurement and error propagation in calculation. Treatment of experimental data and evaluation of experimentally determined quantities. Design of engineering experiments.

40. Engineering Problem Analysis I (1) I, II

Three hours of laboratory.

Prerequisites: Engineering 30 and Mathematics 51.

Analysis of engineering problems and solutions using the digital computer. Fundamentals of programing and programing language commands.

50A. Engineering Mechanics I (3) I, II

Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.

Static equilibrium of particles and rigid bodies. Vector algebra and calculus. Kinetics of particles. Work and energy. Impulse and momentum. Engineering applications.

50B. Engineering Mechanics II (3) I, II

Prerequisites: Engineering 50A and credit or concurrent registration in Mathematics 52.

Elements of kinematics, central force motion, systems of particles, moments and products of inertia, Euler's equations of motion. Vibration and time response. Engineering applications. Vector notation will be used. (Formerly Engineering 51.)

60. Electric Circuits (3) I, II

Prerequisites: Physics 4B and Mathematics 51.

Direct-current circuits, magnetic circuits, induced voltages, single-phase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis. Not open to students with credit in Engineering 100A.

65A-65B. Industrial Practice (2-2)

Prerequisite: Sophomore standing in engineering. Selection based on personal interview, following written application.

Supervised training in co-operating industrial organizations. First year of a three-year program providing the opportunity for selected students to correlate their formal college training with industrial experience at corresponding levels of responsibility and difficulty.

UPPER DIVISION COURSES

100A. Electric Circuits (3) I, II

Prerequisites: Physics 4B and Mathematics 51.

Direct-current circuits, magnetic circuits, induced voltages, single-phase and polyphase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis. Not open to students with credit in Engineering 60.

100B. Electrical Machinery (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 60 or 100A.

Theory of operation and the analysis of the characteristics of transformers, DC and AC motors and generators. Associated control devices.

100C. Electric and Magnetic Fields (3) I, II

Prerequisite: Physics 4B and Mathematics 52.

Electrostatic and magnetostatic field theory using vector notation; Coulomb's Law, Gauss' Law and potential theory. Solutions to Poisson's and Laplace's equations; capacitance and inductance. Time varying electric and magnetic fields; Maxwell's equations.

101. Elements of Applied Electronics (2) I, II
Prerequisite: Engineering 60 or 100A.
Application of electron tubes, transistors in typical electronic circuits. Analysis of the operational characteristics of electron tubes and transistors. Emphasis on their utilization in engineering devices and systems.

103. Electrical Engineering Laboratory (1) II
Three hours of laboratory.
Prerequisites: Engineering 100B and credit or concurrent registration in Engineering 101. Not open to students filing an electrical engineering master plan.
A laboratory course to include selected experiments in electrical circuits, electrical machinery, and electronics.

106. Manufacturing Processes (2) I
One lecture and three hours of laboratory.
Prerequisite: Engineering 25.
Analysis of the various machines, tools, and processes used in modern manufacturing and fabrication operations.

108. Thermodynamics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Physics 4C, Engineering 25 and 30, and credit or concurrent registration in Engineering 50B.
Generalized concepts of force, displacement, work and energy; development of laws of classical thermodynamics; general equations of thermodynamics; application to simple chemical systems.

109A. Metallic Materials (2) II
Prerequisites: Engineering 25 and Physics 4C.
Ferrous and nonferrous metallurgy. Effect of heat treatment, aging, and other processes on physical properties. Significance of design criteria on selection of materials.

109B. Nonmetallic Materials (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 109A.
Fundamentals of plastics, reinforced plastics, and ceramics. Analysis of effect of physical properties upon selection of a material for use in design.

115. Fluid Mechanics (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 50B and 108, and credit or concurrent registration in Engineering 187A or Mathematics 118A.
Statics and dynamics of incompressible and compressible fluids. Viscosity, fluid friction, laminar and turbulent flow. Flow in pipes and open channels. Introduction to hydrodynamics and flow about immersed objects.

116. Resistance of Materials (4) I, II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 25 and 50B; and credit or concurrent registration in Engineering 187A or Mathematics 118A.
Elastic and plastic properties and strength of engineering materials. Analysis of types of failures, stress analysis and deformation of simple structural and machine members. Laboratory testing procedures and experimental confirmation of elastic and plastic theory.

118. Transfer and Rate Processes (3) I, II
Prerequisites: Engineering 115 and Engineering 187A or Mathematics 118A.
Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

120A. Structural Analysis I (4) II

Prerequisite: Engineering 116.

Principles of mechanics applied to analysis of beams, frames, trusses, and three-dimensional frameworks. Graphical methods, influence lines; deflections; introduction to statically indeterminate structures and moment distribution.

120B. Structural Analysis II (3) I

Prerequisite: Engineering 120A.

Analysis of statically indeterminate structures by virtual work. Advanced treatment of slope deflection, moment distribution. Arch analysis, secondary stresses in trusses. Advanced treatment of influence lines.

121. Reinforced Concrete (3) II

Prerequisite: Engineering 120A.

Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

122. Soil Mechanics and Foundation Engineering (3) I

Two lectures and three hours of laboratory.

Prerequisites: Geology 53, Engineering 116, and credit or concurrent registration in Engineering 115.

Principles of mechanics of soils; physical and mechanical properties; consolidation, shear strength and compaction; lateral earth pressures and bearing capacities; shallow and deep foundations. Laboratory studies applied to design problems.

123. Applied Hydraulics (3) I

Prerequisite: Engineering 115.

Application of principles of fluid mechanics in the fields of hydrology, water supply, hydraulic machinery, drainage, and waste disposal.

125. Sanitary Engineering (3) II

Prerequisite: Engineering 123.

Unit processes used in water treatment and waste-water disposal; physical and chemical tests used in the analysis of water and waste-water.

126. Engineering Photogrammetry (3) I

Two lectures and three hours of laboratory.

Prerequisite: Engineering 30.

Principles of metrical photography as they apply to engineering. Use of aerial and terrestrial photographs for interpretation of topography, soil types and drainage conditions for engineering works. Stereoscopic compilation of maps from photographs.

127. Highway Engineering (3) I

Two lectures and three hours of laboratory.

Prerequisites: Engineering 128A and credit or concurrent registration in Engineering 123.

Highway planning, economics, and administration; geometric design; traffic engineering; subgrade structure; bituminous and portland-cement concrete pavements.

128A. Surveying for Civil Engineers (3) II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 30.

Principles of plane surveying. Measurement of horizontal distance, difference in elevation, and angles. Traverse surveys and computations. Horizontal and vertical curves. Principles of stadia. Topographic surveys. Earthwork.

128B. Advanced Surveying (3) I

Two lectures and three hours of laboratory.

Prerequisite: Engineering 128A.

Theory and application of precise control surveys; cadastral surveys; specialized surveying operations.

129. Highway Materials (2) II
One lecture and three hours of laboratory.
Prerequisite: Credit or registration in Engineering 127 or Engineering 122.
Selection, design, and control of mixes of various materials used in highway engineering practice. Emphasis on strength and properties of plain concrete and asphalts.

130. Network Analysis (4) II
Prerequisites: Engineering 60 or 100A and Mathematics 52.
Analysis of complex direct-current and single-phase and poly-phase alternating-current networks. Four-terminal network theory.

131. Electromechanical Control Devices (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 50B and 100B; and Engineering 187A or Mathematics 118A; and credit or concurrent registration in Engineering 101.
Application of amplidynes, thymatrols, rototrols, synchros, and selsyns in servo-systems and other devices.

132. Time-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 130, and 187A or Mathematics 118A.
Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method.

134A. Analysis and Design of Electronic Circuits (3) I, II
Prerequisites: Engineering 101, 130, and 187A or Mathematics 118A.
A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits; feedback theory and tuned amplifiers.

134B. Analysis and Design of Electronic Circuits (3) I, II
Prerequisite: Engineering 134A.
A continuation of Engineering 134A to include regulated power supplies, oscillators; theoretical analysis of amplitude, frequency, and phase modulation; modulator and detector circuits; switching circuits and transient response of amplifiers.

135A. Electronic Circuits Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Engineering 134A.
Vacuum-tube and transistor dynamic characteristics; single stage and multistage amplifier circuits including feedback and tuned amplifiers.

135B. Electronic Circuits Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Engineering 135A.
Regulated power supply systems; oscillator, modulator, detector and switching circuits; superheterodyne receivers and television circuitry.

136. Electronic Instrumentation (2)
Prerequisite: Engineering 101.
Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

137. Communication Networks (3) I
Prerequisites: Engineering 100C, 130, and 187A or Mathematics 118A.
Theory and application of transmission lines including analysis by matrix notation; use of Smith chart and other transmission line charts; impedance-matching with transmission line stubs and lumped constants; theory and design of constant-k, m-derived, and other types of filter networks.

138A. Feedback Control Systems (3) II

Prerequisites: Engineering 132 and 134A.

Analysis of regulatory systems including servomechanisms by the Laplace transform method. System performance and stability; Nyquist, Bode, and root-locus diagrams; elementary synthesis techniques. Practical components and examples of typical designs.

138B. Feedback Control Systems Laboratory (1) II

Three hours of laboratory.

Prerequisites: Engineering 131, 135A and credit or concurrent registration in Engineering 138A.

Analysis of steady-state and transient response of uncompensated and compensated feedback control systems using transfer functions and frequency response techniques.

139A. Advanced Field Theory (3) II

Prerequisites: Engineering 137 and credit or concurrent registration in Engineering 134B, and 187B or Mathematics 118B.

Time-varying electric and magnetic fields. Application of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; waveguides and resonators, electromagnetic radiation.

139B. Microwave Measurements Laboratory (1) II

Three hours of laboratory.

Prerequisites: Credit or concurrent registration in Engineering 135B and 139A.

Experimental study of frequency generation including klystrons, magnetrons and signal generators. Impedance, attenuation, phase, frequency, and power measurements; coaxial lines and waveguides; propagation in air, resonant cavities and antennas.

140. Principles of Heat Transfer (3) II

Prerequisite: Engineering 118.

Heat transfer by conduction, convection, radiation, and combinations thereof; introduction to aerodynamic heating and heat transfer by phase change.

141. Internal Combustion Engines (4) I

Three lectures and three hours of laboratory.

Prerequisite: Engineering 148.

Analysis of idealized and real internal combustion engine cycles; combustion problems; performance of reciprocating and rotary types of internal combustion engines. Principles of reaction motors.

142. Fuels and Combustion (3) I

Prerequisite: Engineering 108.

Types of fuels; stoichiometric and thermochemical analysis of combustion. Process of combustion. Physical properties of fuels. Applications to combustion in engines and furnaces.

143. Gas Dynamics (3) I

Prerequisite: Engineering 148.

Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

144. Thermal Environmental Engineering (3)

Two lectures and three hours of laboratory.

Prerequisite: Engineering 108.

Thermodyamic theory of air conditioning and refrigeration.

145. Mechanics of Machinery (4) I

Three lectures and three hours of laboratory.

Prerequisite: Engineering 50B.

An extension of the principles of statics and dynamics to mechanisms and to mechanical systems. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

146A. Elements of Machine Design (3) II
Prerequisite: Engineering 116.
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

146B. Advanced Machine Design (3)
Prerequisite: Engineering 146A.
Advanced topics in strength of materials including energy methods, stress concentrations, curved beams, and thick-walled cylinders. Applications to design of machine elements.

147A. Introduction to Mechanical Vibrations (3) I
Prerequisites: Engineering 50B, 116, and 187A or Mathematics 118A.
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

147B. Experimental Vibrations (3) II
Prerequisite: Engineering 147A.
Experimental problems utilizing vibration excitation equipment, recording systems, transducers, digital and analog computers.

148. Engineering Thermodynamics (4) I
Three lectures and three hours of laboratory.
Prerequisite: Engineering 115.
Further development of the laws of classical thermodynamics. Applications to energy conversion devices.

149. Advanced Thermodynamics (3)
Prerequisite: Engineering 148.
Cyclic and analytical methods of thermodynamic analysis. Development of general thermodynamic equations and methods of solution. Introduction to microscopic thermodynamics with application to the study of transport properties.

150. Aerodynamics (3) I
Prerequisites: Engineering 115 and credit or concurrent registration in Engineering 187B or Mathematics 118B.
Subsonic and supersonic flow, airfoil and wing theory, small perturbation method.

151A-151B. Aerospace Structural Analysis (3-3) I, II
Prerequisites: Engineering 116 and credit or concurrent registration in Engineering 187B or Mathematics 118B. Engineering 151A is prerequisite to 151B.
Methods of structural analysis including both the static and dynamic aspects of problems encountered in the flight of aerospace vehicles.

152. Aircraft Propulsion Systems (3) II
Prerequisite: Engineering 148 or 150.
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.

153. Aerospace Flight Mechanics (3) II
Prerequisites: Engineering 50B, and 187A or Mathematics 118A.
Aerodynamics and dynamics of ballistic missiles; guidance systems; orbits and space trajectories; effects of aerodynamics, mass, rotation and shape of the earth on ballistic and space trajectories. Computer programming and problem solutions will be emphasized.

154. Experimental Aerodynamics (2) I
One lecture and three hours of laboratory.
Prerequisites: Credit or concurrent registration in Engineering 150.
Operating characteristics of subsonic and supersonic wind tunnels. Aerodynamic characteristics of wings and bodies. Flow visualization techniques. Force, moment and pressure distribution measurement. Use of hot-wire anemometer and schlieren equipment.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Chemistry 160A-160B)
Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

165A-165B-165C-165D. Industrial Practice (2-2-2-2)
Prerequisites: Engineering 65A and 65B.
Supervised training in cooperative industrial organizations. Second and third years of a three-year program providing the opportunity for selected students to correlate their formal training with industrial experience at corresponding levels of responsibility and difficulty.

166. Honors Course (Credit to be arranged)
Refer to the Honors Program.

180. Principles of Engineering Economy (3)
Prerequisite: Engineering 115.
Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.

181. Hydrodynamics (3)
Prerequisites: Engineering 50B or Physics 105, and Engineering 187A or Mathematics 118A or 119 or 124.
Kinematics, equations of continuity, energy, and momentum of perfect fluids. Introduction to conformal transformations. Three-dimensional and two-dimensional irrotational motion, with applications to physical problems. Vector notation will be used.

182. Transistor Circuit Analysis (3) II
Prerequisite: Credit or concurrent registration in Engineering 134B.
Analysis and design of transistor voltage and power amplifier circuits by use of duality and matrix methods. Feedback amplifiers, audio amplifiers, video amplifiers, power supplies, and oscillators; transient analysis and noise considerations.

183. Simulation of Engineering Systems (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 40, and 187A or Mathematics 118A.
Analysis and design of engineering systems using modern analog and digital computers. Simulation of dynamic systems. Application to problems in mechanics, heat transfer, thermodynamics, and control systems.

184. Experimental Strain Measurements and Analysis (3)
Two lectures and three hours of laboratory.
Prerequisites: Engineering 60 or 100A, and 116.
Laboratory methods for measuring deformation, strains, and forces. Emphasis on instrumentation.

186. Advanced Resistance of Materials (3) II
Prerequisites: Engineering 116, and 187A or Mathematics 118A.
Advanced topics in resistance of materials including combined stresses, buckling, and failure theories. Introduction to elastic stability and instability.

187A-187B. Methods of Analysis (3-3)
Prerequisite: Mathematics 52; Engineering 187A is a prerequisite for Engineering 187B.
Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing analytical methods, analogs, dimensional analysis and the theory of models.

188. Digital Solutions of Engineering Problems (3) II

Prerequisites: Engineering 40 or Mathematics 7, and Engineering 187A or Mathematics 118A.

Digital solution of classes of engineering problems. Application of numerical methods with consideration of limitations imposed by computer and programing language characteristics.

189. Automatic Control Systems (3) II

Prerequisites: Engineering 50B, 100B, and 187A or Mathematics 118A or 119.

Not open to students filing an electrical engineering master plan.

Analysis of the output-input characteristics of linear, mechanical, electrical, hydraulic, and pneumatic control systems.

190A. Civil Engineering Structural Design (2) II

Six hours of laboratory.

Prerequisites: Engineering 121 and 122.

Introduction to structural design in steel; structural connections; tension and compression members; beams; building code requirements applied to design of buildings of various structural materials including steel.

190C-190D. Mechanical Engineering Applications (2-2) I, II

Six hours of laboratory.

Prerequisites for 190C: Engineering 106, 108, and 116.

Prerequisites for 190D: Engineering 145, 146A, 148, and 190C.

Applications of engineering principles to design of machinery and energy conversion systems. Individual student projects.

190G. Engineering Applications (Dynamic Stability and Control) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Engineering 150, 151B, 154, and credit or concurrent registration in Engineering 152.

Fundamental engineering principles applied to the analysis and design of aircraft control systems. Control surface theory, stability (static and dynamic) and control, operational methods of solving problems, stability criteria, root-locus method, artificial stabilization, preliminary design of an aircraft.

190H. Engineering Applications (Aerospace Design) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Engineering 150, 151B, 154, and credit or concurrent registration in Engineering 152.

Applications of engineering principles to a comprehensive problem in the analysis and design of an aircraft.

191. Microwave Devices (2)

Prerequisite: Credit or concurrent registration in Engineering 139A.

Microwave devices including klystrons, traveling wave tubes, and magnetrons; harmonic generators, frequency synthesizers, wave guide filters, and varactor applications. Masers.

192. Semiconductor Devices (2)

Prerequisite: Engineering 134A.

Tunnel diodes and backward diodes, breakdown diodes, multilayer diodes, varactor diodes, silicon controlled rectifiers and switches, unijunction transistors, field effect transistors, and hot electron devices.

193. Electronic Analog Systems (3)

Prerequisite: Engineering 134A.

Modern analog computers using electronic and electro-mechanical elements. Operational amplifiers, integrators, summing devices and non-linear elements.

194. Pulse and Digital Circuits (3)
Prerequisite: Engineering 134B.
Analysis of multivibrators, time base generators, pulse transformers, blocking oscillators, delay lines, counting circuits, digital computing circuits, and transmission gates.

195. Logic Design and Switching Circuits (3)
Prerequisite: Engineering 134B.
Boolean algebra, minimization methods; multiple output functions, combinational logic applied to coding and decoding; gating elements. Asynchronous sequential logic; control and computer applications.

196. Advanced Engineering Topics (1-3) I, II
Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.
Analysis of modern developments in engineering. Six units maximum credit for any combination of Engineering 196 and 199.

199. Special Study (1-4) I, II
Prerequisites: Minimum grade point average of 2.0 in engineering or approval of the Academic and Ethical Standards Committee of the School of Engineering.
Individual study. Six units maximum credit for any combination of Engineering 196 and 199.

GRADUATE COURSES IN AEROSPACE ENGINEERING

AE 200. Seminar (1-3)
Prerequisite: Consent of the graduate adviser and instructor.
Intensive study of selected topics in aerospace engineering, topic to be announced in class schedule. Maximum credit 6 units applicable on a master's degree.

AE 202. Aeroelasticity (3)
Prerequisites: EM 201 and credit or concurrent registration in Engineering 187B or Mathematics 118B.
Aircraft and missile structures deformed under static and dynamic loads; aeroelastic instability, vibration modes, divergence, loss of control and alteration of lift distribution; introduction to flutter analysis.

AE 204. Flight Dynamics—Stability and Control (3)
Prerequisite: Credit or concurrent registration in EM 201.
Dynamic stability and control of aerospace vehicles. Stability derivatives, stability of uncontrolled motion, response to actuation of controls, automatic stability and control.

AE 205. Flight Dynamics—Theory of Flight Paths (3)
Prerequisites: Engineering 150.
Analysis of trajectories of aircraft, missiles, satellites, and spacecraft subjected to uniform or central gravitational forces, aerodynamic forces, and thrust.

AE 222. Aerothermal Structural Analysis (3)
Prerequisites: EM 221.
Stress analysis of structures at elevated temperatures.

AE 240. Advanced Hydrodynamics (3)
Prerequisite: Engineering 181.
Theory of flows in which compressibility and viscosity effects do not predominate. Flow nets, conformal mapping. Applications to subterranean flow, airfoils, and surface waves.

AE 243. Supersonic Flow Theory (3)
Prerequisites: Engineering 150.
Theory of flow at supersonic speeds. Linearized theory, three-dimensional wings in steady flight, slender-body theory, methods of characteristics.

AE 244. Hypersonic Flow Theory (3)
Prerequisite: AE 243.
Two- and three-dimensional hypersonic flows. Hypersonic similarity parameter, hypersonic small-disturbance theory; Newtonian flow, shock-layer, and other methods for blunt bodies.

AE 245. Magnetofluidmechanics (3)
Prerequisite: EM 243.
Study of the effects of interaction of an electromagnetic field with an electrically conducting fluid. Stability, boundary layers, shock waves, and other applications.

AE 246. Rarefied and Real Gas Flows (3)
Prerequisite: Engineering 187B or Mathematics 118B.
Kinetic theory, the Boltzmann equation, the hydrodynamic equations, Chapman-Enskog Theory. Real gases and chemical reactions. Approximations: applications to shock structure, ultrasonics, heat transfer, and hypersonics. Free molecule flow.

AE 296. Advanced Topics in Aerospace Engineering (2 or 3)
Advanced study in the field of aerospace engineering, topic to be announced in the class schedule. Maximum of six units of course 296 applicable on a master's degree.

AE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in Course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN CIVIL ENGINEERING

CE 200. Seminar (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in advanced civil engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

CE 201. Advanced Theory of Structures (3)
Prerequisites: Engineering 120B, and 187A or Mathematics 118A.
Analysis of statically indeterminate structures based on principles of deflected structures. Approximate analysis of structures under lateral loads for rigid and shear wall structures.

CE 202. Design of Thin Shell Structures (3)
Prerequisite: Engineering 120B.
Analysis and design of typical civil engineering thin shell structures.

CE 203. Plastic Design in Steel (3)
Prerequisite: Engineering 120B.
Analysis and design of steel framed structures for ultimate load. Connections, secondary design problems, column stability, and repeated loading.

CE 204. Advanced Problems in Structural Design (3)
Prerequisite: CE 201.
Design of buildings in steel and timber by elastic theory and limit design. Seismic resistant design.

CE 205. Prestressed Concrete Structures (3)
Prerequisite: Engineering 120B.
Fundamental concepts of prestressed concrete theory. Design applications to various types of structures.

CE 206. Matrix Analysis of Structures (3)
Prerequisite: Engineering 120B.
Development of matrix methods for the analysis of structural systems. Force methods, displacement methods. Application of the digital computer to structural analysis.

CE 207. Dynamics of Structures (3)

Prerequisite: Engineering 120B.

Dynamic disturbances, structures with variable degrees of freedom, free vibrations of slender elastic beams; continuous beams, rigid frames, floor systems. Energy methods in structural dynamics.

CE 220. Traffic Engineering (3)

Prerequisite: Engineering 127.

Traffic characteristics and studies. Control and regulation of street and highway traffic. Parking facilities, mass transportation, traffic engineering administration.

CE 221. Airport Engineering (3)

Prerequisite: Engineering 127.

Problems in airport planning and design. Site selection, general airport layout; safety, economy and community compatibility. Functional design of buildings. Lighting, navigational aids, approach protection.

CE 230. Open Channel Hydraulics (3)

Prerequisite: Engineering 123.

Open channel flow theory, analysis, and problems, including studies of critical flow, uniform flow, gradually varied and rapidly varied flow, all as applied to the design of channels, spillways, energy dissipators, and gravity pipelines.

CE 231. Engineering Hydrology (3)

Prerequisite: Engineering 123.

Measurement and interpretation of precipitation, evapotranspiration, stream flow and groundwater flow; hydrologic methodology and applications.

CE 235. Water Quality Engineering (3)

Prerequisites: Engineering 123 and 125.

Development of water quality criteria. Survey of current methods of water treatment, wastewater treatment and water renovation. Economic considerations of water management.

CE 236. Water Quality Processes I (3)

Two lectures and three hours of laboratory.

Prerequisite: Civil Engineering 235 or concurrent registration with consent of instructor.

Theoretical and laboratory study of the chemical and microbiological processes which govern modern water and wastewater treatment.

CE 237. Water Quality Processes II (3)

Two lectures and three hours of laboratory.

Prerequisite: Civil Engineering 236.

Laboratory and pilot plant studies involving the application of physical, chemical and biological processes to the treatment of water, wastewater and industrial wastes.

CE 240. Advanced Soil Mechanics (3)

Prerequisite: Engineering 122.

Advanced theories of soil mechanics and their applications to design, including physicochemical behavior of soils, theories of compaction, consolidation, stress distribution, shear strength, settlement analyses, lateral pressures, and bearing capacity of soils.

CE 241. Advanced Foundation Engineering (3)

Prerequisite: CE 240.

Advanced theories of soil bearing capacity and stress distribution in soils. Analysis and design of foundations and retaining walls. Shallow foundations, piles, piers and caissons. Design of foundations for dynamic loads. Dewatering and other field problems.

CE 242. Seepage and Earth Dams (3)
Prerequisite: CE 240.
Principles governing the flow of water through soils and their application in the design of earth and rock fill dams. Stability analyses for earth dams.

CE 280. Seminar in Structural Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in structural engineering. Maximum credit six units applicable on a master's degree.

CE 281. Seminar in Transportation Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in transportation engineering. Maximum credit six units applicable on a master's degree.

CE 282. Seminar in Soil Mechanics and Foundation Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in soil mechanics and foundation engineering. Maximum credit six units applicable on a master's degree.

CE 283. Seminar in Hydraulic Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in hydraulic engineering. Maximum credit six units applicable on a master's degree.

CE 284. Seminar in Sanitary Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in sanitary engineering. Maximum credit six units applicable on a master's degree.

CE 285. Seminar in Construction Engineering (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in construction engineering. Maximum credit six units applicable on a master's degree.

CE 286. Seminar in Geometronics (2 or 3)
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in geometronics. Maximum credit six units applicable on a master's degree.

CE 296. Advanced Topics in Civil Engineering (2 or 3)
Advanced study in the field of civil engineering, topic to be announced in the class schedule. Maximum of six units of course 296 applicable on a master's degree.

CE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN ELECTRICAL ENGINEERING

EE 200. Seminar (1-3)
An intensive study in advanced electrical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

EE 201. Seminar in Electromagnetic Systems (1-3)
An intensive study in electromagnetic systems. Maximum credit six units applicable on a master's degree.

EE 202. Seminar in Electronic Design (1-3)
An intensive study in electronic design. Maximum credit six units applicable on a master's degree.

EE 203. Seminar in Digital Systems (1-3)
An intensive study in digital systems. Maximum credit six units applicable on a master's degree.

EE 204. Seminar in Feedback Control Systems (1-3)
An intensive study in feedback control systems. Maximum credit six units applicable on a master's degree.

EE 210A. Linear System Analysis (3)
Prerequisites: Engineering 130 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Loop and nodal system equations based on topological considerations, four-terminal network theory using matrices. Fourier integral transform theory as applied to linear system analysis. Positive real functions and associated testing methods. (Formerly entitled: Network Analysis.)

EE 210B. Linear System Synthesis (3)
Prerequisite: EE 210A.

Frequency-domain synthesis of driving point and transfer impedances in passive and active networks. Canonical forms and network equivalents. Time-domain synthesis and considerations of pulsed-data systems.

EE 212. Electrical Noise (2)
Major types and origins of electrical noise and the effects of noise on system behavior. Emphasis on concepts of noise as a random process, as distinguished from systematic or periodic interference.

EE 220. Feedback Control Systems (3)
Prerequisite: Engineering 138A or 189.

Analysis and synthesis of feedback control systems using feedback compensation. Multiple-loop control systems; a-c feedback control systems; optimization.

EE 222. Sampled-Data Systems (3)
Prerequisite: Engineering 138A.

Analysis and synthesis of sampled-data and digital control systems; techniques for the design of time optimal sampled-data control systems; z-transform calculus and difference equation synthesis techniques for determining stability and system response.

EE 224. Non-Linear Feedback Control Systems (3)
Prerequisite: EE 220.

Design and analysis of control systems which contain non-linearities, types of non-linearities, integrable systems, phase-plane analysis, describing functions and frequency analysis; compensation for unwanted non-linearities and application of compensating non-linearities.

EE 226. Optimal Control Systems (3)
Prerequisite: EE 220.

Optimal control theory through use of calculus of variations; dynamic programing, Pontryagin's maximum principle for optimizing trajectories and control processes. Analysis and design of adaptive control systems.

EE 230. Advanced Logic Design and Switching Circuits (3)
Prerequisite: Engineering 195.

Synchronous sequential logic; design of typical computer circuits such as counters, shift registers and error detecting circuits. Logical properties of memory elements, memory element state assignment methods.

EE 232. Transistor Circuit Design (3)
Prerequisite: Engineering 182.

Field effect transistors and circuits; quantitative variable nature of transistor parameters; differential and chopper stabilized dc amplifiers; high efficiency switching mode power amplifiers, converters and inverters; noise, reliability considerations and high speed switching.

EE 234. Semiconductor RF Circuit Design (3)
Prerequisite: Engineering 134B.
Wide band amplifiers, low level RF amplifiers and mixers, IF amplifiers, AGC, tuning and stability problems, unilateralization and mismatching techniques, harmonic oscillators, VHF power amplifiers including varactor multipliers.

EE 236. Electronic Digital Systems (3)
Prerequisite: Engineering 134B.
Detailed comparative analysis of the system organization and operation of several digital computers, with special attention to the interdependence of design decisions and their dependence upon the intended system application.

EE 240. Radiation and Propagation (3)
Prerequisite: Engineering 139A.
Impedance characteristics and radiation patterns of thin linear antenna elements; field intensity calculations. Tropospheric and ionospheric propagation; propagation anomalies.

EE 242. Microwave Networks (3)
Prerequisite: Engineering 139A.
Equivalent circuits for waveguide discontinuities developed on the basis of mode theory, linearity, reciprocity, and symmetry. Application of general network theory to wave guides, cavity resonators and antennas.

EE 244. Microwave Antennas (2)
Prerequisite: EE 242.
Radiation from current distributions; design of microwave antennas; scattering and diffraction of electromagnetic waves. (Formerly EE 246, Microwave Antennas.)

EE 246. Radar Systems (3)
The radar equation; characteristics of CW, FM, MTI, pulse-doppler and tracking radar systems; transmitters, antennas and receivers; detection of signals in noise, extraction of information; propagation effects; system engineering and design.

EE 250. Quantum Electronics (3)
Quantum mechanics for engineers concerned with its application to solid-state devices and optical communication systems.

EE 252. Optical Communications (3)
Prerequisite: EE 250.
Fundamentals of electro-optical technology from ultraviolet through infrared. Characteristics of thermal and laser radiation including generation, transmission, detection, data processing and display.

EE 296. Advanced Topics in Electrical Engineering (2 or 3)
Advanced study in the field of electrical engineering, topic to be announced in the class schedule. Maximum of six units of course 296 applicable on a master's degree.

EE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN ENGINEERING MECHANICS

EM 200. Seminar (2 or 3)
Advanced study of, or within, one phase of engineering mechanics, such as elasticity, plasticity, rheology, and micromeritics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new subject matter for additional credit.

EM 201. Advanced Dynamics (3)

Prerequisites: Engineering 50B or equivalent, and Engineering 187A or Mathematics 118A.

Kinematics and kinetics of systems of particles and rigid bodies with special reference to engineering problems. Moving reference axes, generalized coordinates, Lagrangian equations, Hamilton's principle and variational methods.

EM 203. Theory of Vibrations (3)

Prerequisites: EM 201 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

EM 221. Theory of Elasticity (3)

Prerequisites: Engineering 116 and credit or concurrent registration in Engineering 187B or Mathematics 118B. Engineering 186 is recommended.

Analysis of stress and strain: Stress-strain relations; the equations of elasticity; uniqueness theorem; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

EM 225. Theory of Plates (3)

Prerequisite: EM 221.

Bending and buckling theory of plates; application of small deflection and large deflection theories to plates with various boundary conditions; use of approximate methods and exact methods in solution.

EM 226. Theory of Shells (3)

Prerequisite: EM 221.

Membrane and bending theory of shells of revolution and shells of arbitrary shape; exact and approximate methods of solution of shells subjected to axisymmetric and arbitrary loads.

EM 233. Theory of Plasticity (3)

Prerequisite: EM 221.

Inelastic stress-strain relations. Solutions to engineering problems with ideally-plastic, strain-hardening, and visco-elastic materials.

EM 243. Advanced Fluid Mechanics I (3)

Prerequisites: Engineering 115 and credit or concurrent registration in Engineering 187B or Mathematics 118B.

Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stokes equations. Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

EM 244. Advanced Fluid Mechanics II (3)

Prerequisite: EM 243.

A continuation of Engineering Mechanics 243. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

EM 296. Advanced Topics in Engineering Mechanics (2 or 3)

Advanced study in the field of engineering mechanics, topic to be announced in the class schedule. Maximum of six units of course 296 applicable on a master's degree.

EM 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN MECHANICAL ENGINEERING

ME 200. Seminar (2 or 3)

Prerequisite: Consent of the graduate adviser and instuctor.

An intensive study in advanced mechanical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

ME 201. Seminar in Thermodynamics and Fluid Flow (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in thermodynamics and fluid flow. Maximum credit six units applicable on a master's degree.

ME 202. Seminar in Cryogenics (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in cryogenics. Maximum credit six units applicable on a master's degree.

ME 203. Seminar in Engineering Materials (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in engineering materials. Maximum credit six units applicable on a master's degree.

ME 204. Seminar in Engineering Systems (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in engineering systems. Maximum credit six units applicable on a master's degree.

ME 205. Seminar in Operations Research in Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in operations research in engineering. Maximum credit six units applicable on a master's degree.

ME 206. Seminar in Nuclear Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in nuclear engineering. Maximum credit six units applicable on a master's degree.

ME 207. Seminar in Mechanical Design (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in mechanical design. Maximum credit six units applicable on a master's degree.

ME 210. Cryogenic Engineering (3)

Prerequisite: Engineering 148.

Analysis of low-temperature processes and equipment. Physical properties of structural and other materials used in producing, maintaining, and using low temperatures.

ME 212. Gas Dynamics (3)

Prerequisites: Engineering 143, and 187B or Mathematics 118B.

Further considerations of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

ME 213. Aircraft and Missile Propulsion (3)

Prerequisites: Engineering 142, 143, and 187B or Mathematics 118B.

Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and intercooling. Thermodynamic analysis and performance of turbojet engines, ramjet engines, and rocket motors. Rocket jet propellant systems. Dynamics of rocket propulsion free of gravity and air resistance.

ME 214. Analytical Thermodynamics (3)

Prerequisites: Engineering 149, and 187B or Mathematics 118B.

A development of kinetic theory and statistical thermodynamics. Applications to engineering problems. Irreversible processes. Comparison of classical and irreversible thermodynamics.

ME 215A-215B-215C. Heat Transfer (3-3-3)

Prerequisites: Engineering 140, and 187B or Mathematics 118B or consent of instructor. ME 215A is a prerequisite to ME 215B.

Semester A. Conduction heat transfer, multidimensional conduction processes, transient analyses.

Semester B. Convection heat transfer. Advanced theories of forced and free convection.

Semester C. Radiation heat transfer. Solid body and gaseous radiation. (Formerly ME 215A-215B, Heat Transfer.)

ME 216. Theory of Turbomachines (3)

Prerequisites: Engineering 143 or 150.

Application of the fundamental laws of fluid mechanics to the problems of energy transfer between fluid and rotor. Performance characteristics of turbomachines. Study of loss mechanisms.

ME 220A-220B. Mechanical Vibrations (3-3)

Prerequisites: Engineering 147B and 187B or Mathematics 118B.

Topics in vibration relating to mechanical design such as non-linear vibrations, distributed mass systems, random vibrations, mobility analysis, isolator design.

ME 221. Stress Analysis (3)

Prerequisites: Engineering 146B, 186, and 187B or Mathematics 118B.

Topics in applied elasticity, advanced study of the resistance of materials and experimental stress analysis. Failure theories, energy methods, limit design, theory of plates and shells. Photoelasticity, brittle lacquers, strain gages, and analogs in determining static, dynamic and residual stress distributions.

ME 222A-222B. Synthesis of Machines (3-3)

Prerequisites: Engineering 145, 146A, and 187B or Mathematics 118B.

Problems in mechanical design involving synthesis of mechanisms wherein displacement, velocity, acceleration and jerk are paramount considerations.

ME 224. Fluid Power and Control Systems (3)

Prerequisite: Engineering 189.

Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.

ME 231A. Advanced Science of Materials I (3)

Prerequisite: Engineering 109A.

Structure and physical properties of solids. Imperfections in materials and their effect on various properties. Elasticity, plasticity, and fracture of metals related to atomic and crystal structure.

ME 231B. Advanced Science of Materials II (3)

Prerequisite: M.E. 231A.

Phase equilibria, metastability, rate and growth processes in solids. Principles of alloying and thermal treatments.

ME 233. Reactor Materials (3)

Prerequisite: Engineering 109A.

Metallurgical processing, corrosion, and radiation effects of nuclear materials. Selection of reactor materials.

ME 234. High Temperature Materials (3)
Prerequisite: Engineering 109A.
Behavior of metals, cermets, and nonmetallic materials at high temperatures. Effect of environment and service conditions on composition, structure, and physical properties.

ME 296. Advanced Topics in Mechanical Engineering (2 or 3)
Advanced study in the field of mechanical engineering, topic to be announced in the class schedule. Maximum of six units of course 296 applicable on a master's degree.

ME 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units in course 297 applicable on a master's degree in engineering.

GRADUATE COURSES IN ENGINEERING

E 290. Problem Analysis (3)
Prerequisite: Consent of graduate adviser.
Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

E 298. Special Study (1-3)
Individual study. Three units maximum credit.
Prerequisite: Consent of staff; to be arranged with division chairman and instructor.

E 299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ENGLISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus: Adams, J. R., Dickhaut, Johnson, F., Keeney, Trail

Professors: Baker, J., Burnett, Frey, Gulick, Haskell, Kennedy, C., Marchand, Monteverde, Perkins, Phillips, G., Sanderlin, Sandstrom, Shouse (Chairman), Theobald, Tidwell, Tozer, Wanlass, Widmer

Associate Professors: Dickinson, J. W., Gellens, Gross, Vanderbilt

Assistant Professors: Benson, Black, Chater, Drake, Edrich, Hendrickson, Hinkle, Ingham, Keller, McCoy, McLeod, Nichols, Patterson, Rauber, Reed, Rogers, R., Santangelo, Seright, Sullivan, Szep, Taylor, H., Thrane, Tunberg, Zelenovich

Instructor: Davis, G.

Lecturers: Aninger, Atwater, Brown, R. M. C., Crafts, Denman, Dickey, Dickinson, S., Gary, Matula, Redding, Stimmel, Zimmerman

Offered by the Department

Master of Arts degree with a major in English; and Master of Arts degree for teaching service with a concentration in English. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in English with the A.B. degree in liberal arts and sciences.

Minor in English.

Teaching major in English, with specialization in both elementary and secondary teaching.

Teaching minor in English, with specialization in both elementary and secondary teaching.

COMPARATIVE LITERATURE

For courses in world literature, see comparative literature; these courses give credit toward the English major and minor or toward the minor in comparative literature.

ENGLISH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. To satisfy the requirement in foreign language, students may not use courses in conversation.

A minor is not required with this major.

Preparation for the major. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Major. A minimum of 24 upper division units in English, selected with the approval of the departmental adviser, and including at least three units of Shakespeare (117A or 117B), six units of British literature before 1800 exclusive of Shakespeare (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151), and six units of British literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

Selection of Courses

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general college regulations (see Credit for Upper Division Courses in the section of the catalog on General Regulations), substitute six units of upper division electives for six units of lower division work, such upper division units to be selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 1A and 1B) an equivalent number of units of upper division courses selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, 143B, 151.

ENGLISH MINOR

The minor in English consists of from 15 to 22 units in English, nine units of which must be in upper division courses.

ENGLISH MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Specialization in Elementary Teaching

Preparation for the major. Twelve units of lower division English, to include English 56A, 56B, and six additional units from courses numbered 50 or above.

Teaching major. A minimum of 24 upper division units in English, selected with approval of the departmental adviser, to include three units from English 117A, 117B; six units from English 191, 192, 193; three units from English 119A, 119B, 120B, 149; six units from English 130, 131, 132, 133, 134, 135, 189; six units from English 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 129A, 129B, 143A, 143B, 149, 151.

Education 133 is required in addition to the major.

Specialization in Secondary Teaching

Preparation for the major. Twelve units of lower division English to include English 56A, 56B, and six additional units from courses numbered 50 or above.

Teaching Major (Undergraduate). A minimum of 24 upper division units in English, selected with approval of the departmental adviser, to include three units from English 117A, 117B; six units from English 130, 131, 132, 133, 134, 135; nine units of British literature exclusive of Shakespeare, to include at least three units in literature before 1800 (chosen from English 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151) and at least three units in literature after 1800 (chosen from English 119A, 119B, 126A, 126B, 129A, 129B, 143B); three units from English 141, 195A, 195B, 198; and three units from English 191, 192, 193. In addition, Education 122 and a second course from English 191, 192, 193 must be taken either before or after graduation as a requirement for the credential but not the degree.

Postgraduate Year. Nine units, to include English 290 (Bibliography), at least one seminar, and an upper division or graduate course in literature (which may be another seminar). At least three units of the nine must be in British literature.

ENGLISH MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in English for elementary teaching consists of not less than 20 units in English to include three units in American literature. At least six units must be in upper division courses.

Specialization in Secondary Teaching

Lower Division. English 1A and a year course chosen from English 50A-50B, 56A-56B, 60A-60B. (9 units)

Upper Division. Eighteen units of upper division courses in English, to include six units from English 191, 192, 193 and at least three units from each of the following areas: Nineteenth Century British Literature (chosen from English 119A, 119B, 126A, 126B, 143B); Shakespeare (chosen from English 117A, 117B); American literature (chosen from English 130, 131, 132, 133, 134, 135); and three units of electives in upper division English.

Education 122 is required in addition to the minor.

CREDIT IN COURSE SEQUENCES

All elective year courses in the English Department may be begun in either semester, and either semester may be taken singly for credit.

PREREQUISITES

English 1A is prerequisite to all English courses except English 2.

LOWER DIVISION COURSES

R. Reading Laboratory (0) I, II
A semitutorial service offered by the English Department to those wishing to improve reading ability or secure individual help with study problems. Open to all students at any level of college work.

S. Spelling (0) I, II
A semitutorial service offered by the English Department to those wishing to improve their spelling through an intensive review of principles and through practice. Open to students at any level of college work.

W. Writing Laboratory (0) I, II
A semitutorial service offered by the English Department to those wishing assistance in writing projects, either remedial or advanced. Open to students at any level of college work.

ENGLISH FOR FOREIGN STUDENTS

Foreign students will be assigned to English 1X, 1Y, or 1A on the basis of their performance on the English examination for foreign students and a diagnosis resulting from an oral interview. Neither 1X nor 1Y will satisfy the college general education requirement for written communication, although unit credit will be granted for these courses.

1X. Fundamentals of English for Foreign or Bilingual Students (3) I, II
A first course in English grammar and composition with intensive practice on idiom in the Language Laboratory. At the discretion of the instructor, satisfactory completion of this course qualifies a foreign student for taking either English 1Y or 1A.

1Y. English for Foreign or Bilingual Students (3) I, II
Prerequisite: English 1X or performance on the English examination for foreign students satisfactory to the instructor.

English grammar and composition. Satisfactory completion of this course will qualify a foreign student for taking English 1A.

1A-1B. First Year Reading and Composition (3-3) I, II
Prerequisite: English 1A is prerequisite to 1B.

First semester: Principles and methods of expository writing. 1A is a required course in general education.

Second semester: Further practice in writing, based on the study of selected literature.

2. Freshman Literature (3) I, II
Introduction to the reading of literature.

10. Individual Reading (1) I, II
Reading of selected works of drama, poetry, or fiction, by a single author.

20. Latin and Greek Word Derivation (3) I, II
(Same course as General Language 20)

A general and elementary course in philology. Study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

50A-50B. Masterpieces of American Literature (3-3) I, II
Semester I: Major American writers from the beginning to 1860. Semester II: American literature from 1860 to the present.

52A-52B. Masterpieces of World Literature (3-3) I, II
(Same course as Comparative Literature 52A-52B)

A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay.

56A-56B. Survey of English Literature (3-3) I, II
Prerequisite: English 2 or 1B.

The study of some important works of English literature from the Anglo-Saxon period through the Victorian age, with emphasis upon the literary history of each period.

60A-60B. Literature and Personality (3-3)
A close study of a limited number of the great creators of literature. The goal of the course is to derive, from markedly different specific works, orderly and generalized methods for the interpretation of great literature.

61. Sophomore Composition (3) I, II
Prerequisite: English 1A.

Practical writing beyond the freshman level.

62. Directed Writing (3) I, II
Guidance and extensive practice in effective creative writing, particularly description and narration.

UPPER DIVISION COURSES

100. English Fundamentals (0) I, II
Review of spelling, punctuation, grammar, and usage; exercises in vocabulary building and in fundamental reading skills; theme writing. Three meetings a week with additional optional work in the Reading and Writing Laboratory.

101A-101B. Modern Continental Fiction (3-3)
(Same course as Comparative Literature 101A-101B)

Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

106. Creative Writing (3) I
A writing workshop in which the students are given opportunity to criticize each other's work. Emphasis on narrative and description, but freedom to pursue whatever writing forms may interest the student most. May be taken a second time with new material.

110. Individual Reading (1) I, II
The study of selected works of a major author. May be repeated to a maximum of two units.

113. American English (3) I
The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary.

115. The Bible as Literature (3) I
(Same course as Comparative Literature 115)

A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

116A-116B. The Age of Elizabeth (3-3)
Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1642, excluding Shakespeare.

117A-117B. Shakespeare (3-3) I, II
The first semester gives special emphasis to the histories and comedies; the second, to tragedy and the dramatic romances.

118A-118B. Restoration and Eighteenth Century English Literature (3-3) I, II
Selected poetry, prose, and drama. The first semester emphasizes the social satire of Dryden, Swift, Pope, Addison, Steele, Gay, Prior; and also the first stirrings of the romantic revolt. The second semester concentrates upon Johnson, Boswell, and their circle, and significant preromantic literature.

119A. English Romantic Poetry (3) I
The culmination of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the revolutionary period.

119B. Victorian Poetry (3) II
Tennyson and Browning with their contemporaries and successors, relating English poetry to Nineteenth Century life and thought.

120A. The Seventeenth Century: Milton (3) II
The poetry and major prose works of Milton, with stress on the development of his art and mind; the political and religious background and the events in which Milton participated.

120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) II
The Metaphysical and Cavalier poets in relation to the cultural and literary backgrounds of the sixteenth, seventeenth, and eighteenth centuries.

126A. Romantic and Victorian Prose (3) I
Romantic and mid-Victorian prose writers, including Coleridge, Hazlitt, Lamb, DeQuincey, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

126B. Late Nineteenth Century British Prose (3) II
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson. Study of scientific, aesthetic, and ethical backgrounds.

129A. Early Modern British Literature (3) I
Selected drama, fiction, and poetry of 1880-1920: Wilde, Shaw, Butler, Hardy (fiction), Bennett, Galsworthy, Wells, Synge, Conrad, Kipling, Yeats (earlier works), Maugham, and certain Georgian and World War I poets.

129B. Contemporary British Literature (3) II
Selected British prose and poetry largely influential after 1920: Joyce, T. S. Eliot, Hardy (poetry), Forster, Virginia Woolf, Lawrence, Aldous Huxley, Yeats (later works), Greene, Auden, Dylan Thomas, and some representative writers in major current movements.

130. American Literature to the Jacksonian Period (3) I
Ideas and representative forms of prose and poetry, studied in the works of such authors as Taylor, Edwards, Franklin, Paine, Freneau, Bryant, and Irving.

131. The American Romantic Period (3) I
Major American writers of the period 1830-1860.

132. The Frontier and American Literature (3) I, II
The influence of the frontier upon American literature, studied through various regions and movements. Examinations of source materials, biographies, and representative writers.

133. The Rise of Realism in American Prose (3) II
Influences, foreign and native; definition of realism. The romantic attack and the realist defense. Illustrated chiefly through the novel.

134. Twentieth Century American Prose (3) I, II
Ideas and forms in significant novels, stories, and nonfictional prose writings.

135. American Poetry and Drama Since 1865 (3) I, II
Emphasis on twentieth century lyric and dramatic forms and ideas, although crucial forerunners (such as Dickinson) are included.

141. Ideas and Forms in Modern Prose (3) I, II
Significant prose writing in the social and natural sciences, travel, the arts, and other fields. Designed primarily for secondary credential candidates with major or minor in English, but open to other students.

143A-143B. The English Novel (3-3)
The history of the English novel from its beginnings to the present century. Emphasis in the first semester will be on the Eighteenth Century and in the second semester on the Nineteenth Century.

148. The Study of Fiction (3) I
A critical study of forms of contemporary prose narrative with a writing workshop.

149. The Study of Poetry (3) I, II
A course proceeding from simpler to more complex poetic productions. Emphasis on current direction in poetry, and on problems of form. The inclination to write poetry is encouraged.

151. Chaucer (3) I
A study of Chaucer's works, with emphasis on "The Canterbury Tales" and "Troilus and Criseyde."

152A-152B. World Drama (3-3)
(Same course as Comparative Literature 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

162. The Writing of Fiction (3) II
Prerequisite: Consent of instructor.
Writing short stories for publication; study and application of commercial market requirements; stress on practical disciplines.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

189. Studies in American Folklore (3) I
American folk songs, tales, legends, superstitions, proverbs, and speech, with particular emphasis on one of these.

191. Advanced Composition (3) I, II
The theory and practice of exposition, including the contributions of semantics, rhetoric, and logic.

192. The English Language (3) I, II
Prerequisite: Open only to seniors and graduate students.
The study of the history of the English language, of its words and structure, of the changes in inflections, pronunciation, vocabulary, and meaning, and of its use as an instrument of communication and human living.

193. The Structure of English (3) I, II
The structure of modern English, including the various approaches to linguistic analysis.

195A. History of Literary Criticism (3) I
Prerequisite: Open only to seniors and graduate students.
A historical survey of the principles and practices of literary criticism from Greek times to the nineteenth century. Readings in the works of Aristotle, Horace, Longinus, Sidney, Boileau, Lessing, Sainte-Beuve, Coleridge, and others.

195B. Theory and Practice of Modern Criticism (3) II
Prerequisite: Open only to seniors and graduate students.
A study of the theory and practice of selected nineteenth and twentieth century critics, with attention to the distinctive features of their approach to traditional and modern literary texts.

196. General Linguistics (3) I
(Same course as General Language 196)
Prerequisite: Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.
A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II
(Same course as General Language 197)
Open only to seniors and graduate students who have had either English 192 or 196.
The phonological, grammatical, and lexical structure of English.

198. Comprehensive Reading and Survey (3) II
Prerequisite: Open only to students with nine upper division units in English.
A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

223. Old English (3)
Prerequisite: Twelve units of upper division work in English.
Elementary grammar and reading in Old English prose and poetry; introduction to *Beowulf*.

224. Middle English (3)
Readings in Middle English prose and poetry exclusive of Chaucer.

239. Twentieth Century Literature (3)
Prerequisite: Twelve units of upper division work in English.
Selected major works in the literature of the modern period. Special emphasis on "Modernism" as a literary movement.

260. Problems of Literary Creation (3)
Prerequisite: Consent of instructor and departmental adviser.
Criticism and coaching in the larger forms. May be repeated with new content for additional credit, to a maximum of six units.

290. Bibliography and Methods of Literary Research (3)
Prerequisite: 12 units of upper division English.
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research, including editorial procedures. Recommended for the first semester of graduate work. Prerequisite to graduate seminar.

291. Seminar: A Major Author (3)
Prerequisite: 12 units of upper division work in English and English 290.
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content for additional credit.

292. Seminar: A Cultural Period (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution, or the like. May be repeated with new content for additional credit.

293. Seminar: A Literary Problem (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary problem, such as Regionalism in America, or European influences on American Literature, or the like. May be repeated with new content for additional credit.

294. Seminar: A Literary Type (3)
Prerequisite: 12 units of upper division work in English and English 290.
The study of a literary type, such as the Personal Essay, Epic, Tragedy, and the like. May be repeated with new content for additional credit.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

FRENCH

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Brown, E., Messier (Chairman, French-Italian), Piffard
Associate Professor: Max
Assistant Professors: Altamura, Cox, Ghilbert, Glasgow, Nelson, H., Turner, N., Woodle
Instructors: Crouse, Palmer
Lecturers: Godwin, MacClelland

Offered by the Department of French and Italian

Master of Arts degree with a major in French. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)
Major in French with the A.B. degree in liberal arts and sciences.
Minor in French.
Teaching major in French with specialization in both elementary and secondary teaching.
Teaching minor in French with specialization in both elementary and secondary teaching.

FRENCH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in French must complete a minor in another field to be approved by the departmental adviser in French.

Preparation for the major. French 1, 2, 3, 4, 10, and 11. (20 units.) Recommended: History 4A-4B.

Major. A minimum of 24 upper division units in French to include French 101A-101B, 102A-102B, and 12 units in the period literature of the language.

FRENCH MINOR

The minor in French consists of from 15 to 22 units in French, six units of which must be in upper division courses.

FRENCH MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Specialization in Elementary Teaching

Preparation for the major. French 1, 2, 3, 4 (or equivalents), 10, 11. (20 units.)

Teaching Major. Twenty-four upper division units to include French 101A, 101B, 102A, 102B, 122, 140, 141, 150, and three upper division units of electives in French. In addition to the major, credential candidates must complete Education 136.

Proficiency Examination: Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

Specialization in Secondary Teaching

Preparation for the major. French 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in French to include French 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of French in the period literature of the language.

Postgraduate Year. Six units of graduate courses in French.

Proficiency Examinations: Before taking a student teaching assignment in the language, the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

FRENCH MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in French for elementary teaching consists of not less than 20 units in French, six units of which must be in upper division courses.

Proficiency Examination: Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

Specialization in Secondary Teaching

The minor in French for secondary teaching consists of not less than 20 units in French, exclusive of course equivalents, to include in the lower division, French 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, French 101A, 101B, 102A, 102B, and 122.

Proficiency Examinations: Before taking a student teaching assignment in the language, the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school French may be counted as the equivalent of French 1; three years the equivalent of French 2; and four years the equivalent of French 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: French 1 or two years of high school French.

Continuation of French 1.

3. Intermediate (4) I, II

Prerequisite: French 2 or three years of high school French.

A practical application of the fundamental principles of grammar. Reading in French of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) I, II

Prerequisite: French 3 or four years of high school French.

Continuation of French 3; outside reading with oral and written reports.

7A-7B. Intensive Reading Course in French (2-2)

Prerequisites: French 1 and 2 or three years of high school French. French 7A is prerequisite to French 7B.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in French. Open only to students preparing for departmental reading examinations. Not open to students with credit in French 3 or 8A-8B.

8A-8B. Scientific Reading (2-2)

Prerequisites: French 2 with a grade of C or better, or three years of high school French. French 8A is prerequisite to French 8B.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit in French 3 or 7A-7B.

10. Conversation (2) I, II

Prerequisite: French 2 or three years of high school French.

Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: French 10 or French 3, or four years of high school French.

Continuation of French 10.

40. French Civilization (2) I

(Same course as Humanities 42)

Conducted in English. No prerequisite.

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science.

41. French Civilization (2) II
(Same course as Humanities 43)
Conducted in English. No prerequisite.
Continuation of French 40.

UPPER DIVISION COURSES

All upper division courses in French are taught in French unless otherwise noted.

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: French 4 and 11, with a grade of C or better.
Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture.

102A-102B. Survey Course in French Literature (3-3)
Prerequisite: French 4 with a grade of C or better.
A study of important movements, authors, and works in French literature from the Middle Ages to the present. French 10 and 11 strongly recommended for liberal arts minor.

105A-105B. Nineteenth Century French Theater (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
Classroom reading and discussion of plays from Victor Hugo through Edmond Rostand. Outside reading and reports.

107A-107B. Eighteenth Century Literature (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theater and novel of the period. Outside reading and reports.

110A-110B. Nineteenth Century French Novel (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
The French novel from Victor Hugo through Anatole France. Class reading, outside reading, reports.

111A-111B. Seventeenth Century French Literature (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
Introduction to the main writers of the Golden Age of French Literature with emphasis on Corneille, Molière, Racine. Lectures, class discussions, outside readings and reports.

112A-112B. French Lyric Poetry (3-3)
Prerequisite: French 102A-102B with grade of C or better.
The French lyric tradition and its development from the introduction of the genre in the Middle Ages to the contemporary period.

122. The Foreign Language Laboratory (2)
Conducted in English.
Prerequisite: Admission to Teacher Education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in German, Italian, Russian, or Spanish 122.

140. French Civilization (2) I
(Same course as Humanities 142)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. French Civilization (2) II
(Same course as Humanities 143)
Conducted in English. No prerequisite.
Continuation of French 140.

148. Applied French Linguistics (3)
Prerequisite: French 101A-101B with grade of C or better.
Systematic study of the differences and similarities between the spoken and written forms of present-day French; detailed analysis of its sounds, morphological and syntactic structure. Designed especially for prospective teachers who expect to use an audio-lingual approach.

150. Advanced Phonetics and Diction (3) Irregular
Prerequisites: French 1, 2, 3, 4, or equivalents, 10 and 11.
For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in French available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. History of the French Language (3)
Prerequisite: 18 units of upper division French.
The history of the French language from the beginnings through sixteenth century.

202. Medieval French Literature (3)
(Offered alternate years)
Prerequisite: 18 units of upper division French and French 201.
Readings in the principal monuments, trends and genres of medieval French literature from the beginnings through Francois Villon.

203. Literature of the French Renaissance (3)
(Offered alternate years)
Prerequisite: 18 units of upper division French.
Literature and thought of the 16th century as represented in the works of Rabelais, Montaigne, Ronsard, DuBellay, etc.

214. The Novel in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Current movements and techniques in the novel in France from 1900 to the present, with concentration on the leading novelists of the period.

215. The Theater in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Movements and techniques in the French dramatic literature from 1900 to the present, with concentration on the leading dramatists of the period.

220. Explication de Textes (3)
Prerequisite: 18 units of upper division French.
An introduction to the analytical French approach to the detailed study of literature. Demonstrations by instructor and students. This course aims to give teachers of French a greater mastery of French language and literature.

230. Methods of Literary Criticism (3)

Prerequisite: 18 units of upper division French.

Theory and practice of various traditional and modern critical approaches to specific literary texts.

250. Seminar in Seventeenth-Century Literature (3)

Prerequisite: 18 units of upper division French.

Directed research in the works of a representative author (such as Corneille, Molière, or Racine), or in a genre or movement. Maximum credit six units applicable on a master's degree.

260. Seminar in Eighteenth-Century Literature (3)

Prerequisite: 18 units of upper division French.

Directed research in the works of a representative author (such as Voltaire, Diderot, or Rousseau), or in a genre or movement. Maximum credit six units applicable on a master's degree.

270. Seminar in Nineteenth-Century Literature (3)

Prerequisite: 18 units of upper division French.

Directed research in the works of a representative author (such as Hugo, Balzac, Stendahl, or Zola), or in a genre or movement. Maximum credit six units applicable on a master's degree.

290. Research and Bibliography (3)

Prerequisite: 18 units of upper division French.

Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)

Prerequisites: 18 units of upper division French and consent of graduate adviser and department chairman.

A study of important movements, authors, and works in French literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisites: 18 units of upper division French and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

GENERAL LANGUAGE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in general language are drawn from departments in the Division of Humanities.

Major or minor work is not offered in general language.

LOWER DIVISION COURSES

20. Latin and Greek Word Derivation (3) I, II

(Same course as English 20.)

A general and elementary course in philology. A study of Latin and Greek stems of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

UPPER DIVISION COURSES

196. General Linguistics (3) I

(Same course as English 196.)

Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.

A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II

(Same course as English 197.)

Open only to seniors and graduate students who have had either English 192 or General Language 196.

The phonological, grammatical, and lexical structure of English.

199. Special Study (1-6) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

GEOGRAPHY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Emeritus: Blake, Molitor, Storm

Professors: Eidemiller, Post, Richardson, Taylor, J., Yahr (Chairman)

Associate Professors: Finch, Kiewiet de Jonge

Assistant Professors: Blick, Colombo, Greenwood, Keen, Knuth, O'Brien, Quastler, Wright

Offered by the Department

Master of Arts degree with a major in geography. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geography with the A.B. degree in liberal arts and sciences.

Minor in geography.

Teaching major in geography with specialization in secondary teaching.

Teaching minor in geography with specialization in both elementary and secondary teaching.

GEOGRAPHY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in geography must complete a minor in another field to be approved by the major adviser.

Preparation for the major. Geography 1, 2, 3, 60; and Geology 1A. (16 units.) Geology 1A may be counted as part of a geology minor if desired.

Major. A minimum of 24 upper division units in geography to include Geography 100, 101, 180, 181A, and 12 units of electives in geography, no fewer than six units nor more than nine units of which shall be from among the courses numbered 120 to 139, inclusive.

GEOGRAPHY MINOR

The minor in geography consists of from 15 to 22 units in geography, nine units of which must be in upper division courses.

GEOGRAPHY MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and Sciences.

Specialization in Secondary Teaching

Preparation for the major. Geography 1, 2, 3, 60; and Geology 1A. (16 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in geography to include 100, 101, 180, 181A, and 12 units of electives in geography.

Postgraduate Year. Six upper division or graduate units acceptable toward the credential, to be selected with the help of the departmental adviser.

GEOGRAPHY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

The minor in geography for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of not less than 20 units in geography to include in the lower division, Geography 1, and either 2 or 60 (Geography 112A-112B may be substituted); and in the upper division, at least nine units of upper division courses in geography (exclusive of Geography 112A-112B). If the major for secondary teaching is non-academic, at least 12 upper division units of geography must be taken. Additional geography electives must be taken to complete the minimum of 20 units.

LOWER DIVISION COURSES

1. Introduction to Geography: Physical Elements (3) I, II

The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. Related field observations.

2. Introduction to Geography: Cultural Regions (3) I, II

Prerequisite: Geography 1.

The regional differentiation of the world by human activity; areal bases of economy and nationality. Not open to students with credit in either 12A or 12B. A maximum of six units will be allowed for Geography 2 and 112A or 112B.

3. Introduction to Meteorology (3) I, II

The composition, structure, and circulation of the atmosphere, including elementary theory of storms and other weather disturbances. May be followed by, or taken with, Geography 4.

4. Introduction to Meteorology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geography 3.

Theory of meteorological instruments and observations. Practical exercise in surface and upper air observations, weather codes, and elementary weather map analysis.

60. Economic Geography (3) I, II

Prerequisite: Geography 1.

Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

UPPER DIVISION COURSES

100. Climatology (3) I

Prerequisites: Geography 1 and 3. Geography 3 and 100 cannot be taken concurrently. To be taken by geography majors in their junior year.

The causes of climatic phenomena and the regional characteristics of climate.

101. Physiography (3) I

Prerequisites: Geography 1 and Geology 1A. To be taken by geography majors in their junior year.

A study of the physiographic processes and concepts, and of selected areas illustrative of physiographic problems. Types of terrain, their origin, and their distribution over the earth.

105. Soils and Natural Vegetation (3) II

Prerequisite: Geography 1.

The soils and natural vegetation associations of the world; their distribution, classification, development, and relations to climates, landforms and economic activity.

110. Historical Geography (3) II

Prerequisite: Geography 1 or 2.

Transformation of the natural and cultural landscape with emphasis on the utilization and significance of resources. Exploration, migration, and settlement in relation to geographic phenomena.

112A-112B. Culture Worlds (3-3)

A study of the evolution, distinguishing cultural characteristics, and physical features of the major cultural regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. This year course not open to students with credit in both 12A and 12B. A maximum of six units will be allowed for one of the following combinations of courses: Geography 2 and 112A or 112B; Geography 12A and 112B; Geography 12B and 112A.

120. California (3) I, II

Prerequisite: Geography 1.

The physiographic regions of California and the cultural landscapes developed by the successive cultural groups.

121. United States (3) I, II

Prerequisite: Geography 1.

The natural regions of the United States, their formation and economic and historical development.

122. Canada and Alaska (3) II
Prerequisite: Geography 1.
The physical and historical bases of Canadian and Alaskan regionalism; the economic and strategic importance of these two areas.

123. Middle America (3) II
Prerequisite: Geography 1.
The land and peoples of Mexico, Central America, and the islands of the Caribbean; a survey of the resources, economies, and trade of the region.

124. South America (3) I
Prerequisite: Geography 1.
A study of the physical regions and human geography of South America, including a review of the history of colonization and the exploitation of resources.

125. North Africa and the Near East (3) II
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies and peoples of North Africa, including the Sahara, and the Near East.

126. Europe (3) I, II
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies and peoples of Europe.

127. Soviet Union (3) I, II
Prerequisite: Geography 1.
Analysis of natural resources, agricultural production, industrial growth, and transportation.

129. Oceania (3) II
Prerequisite: Geography 1.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

130. Central and Southern Africa (3) I
Prerequisite: Geography 1.
A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

131. Eastern Asia (3) I
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies, and people of Eastern Asia.

133. Southeastern Asia (3)
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies, and peoples of Southeastern Asia.

134. Southern Asia (3)
Prerequisite: Geography 1.
The geographic bases for the political heritage, economies, and peoples of Southern Asia.

150. Political Geography (3) I
A study of geography as it relates to the strength of nations and international relations.

151. Economic Geography: Primary Production (3) I
Prerequisite: Geography 1 or 2.
The geography of agricultural production and the extractive industries in relation to world commerce.

152. Industrial Geography (3) II
Prerequisite: Geography 1 or 2.
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions.

153. Conservation of Natural Resources (3) I, II
Prerequisite: Geography 1.
Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases.

154. Water Resources (3) II
Prerequisite: Geography 1.
Occurrence and utilization of water resources and the problems of water resource development.

155. Urban Geography (3) I
Prerequisite: Six units of geography or related experience.
Description and analysis of geographic principles and characteristics related to the distribution, function, structure, and regional setting of urban centers, with discussions of the growth, development and problems of modern cities. Field reconnaissance in local urban areas.

158. Transportation Geography (3)
Prerequisite: Geography 1 or 2.
Analysis of the spatial distribution of transportation networks and commodity movement and their relationship to the distribution of economic activity.

166. Honors Course (Credits to be arranged) I, II
Refer to the Honors Program.

180. Field Geography (3) II
Prerequisites: Senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, and consent of instructor.
Directed fieldwork in physical and cultural geography.

181A-181B. Maps and Graphic Methods (3-3)
Prerequisite: For Geography 181A, Geography 1; Geography 181A is prerequisite to 181B.
The art and science of creating graphs and maps as media for describing and analyzing geographic phenomena. Laboratory instruction and practice in cartographic techniques with emphasis on presenting quantitative data.

182. Use and Interpretation of Aerial Photographs (3) II
Two lectures and three hours of laboratory.
Prerequisites: Geography 1 and consent of instructor.
Stereoscopic interpretation and cartographic representation of landforms, vegetation, and land use. Emphasis on practical exercises.

183. Map Investigation (3) I
Prerequisite: Geography 1.
Interpretation and evaluation of maps. History of developments in cartography. Study of major mapping organizations of the world and examination of their products.

184. Geography of San Diego County (3) II
Saturday field trips to be arranged.
Prerequisites: Geography 1 and 2.
Analysis of the physical and cultural geographic aspects of San Diego County. Completion of Geography 100, 101, 105 will be helpful to students enrolling in this course.

185. Quantitative Methods in Geographic Research (3)
Prerequisites: Two geography courses including one in upper division; Mathematics 12, and Mathematics 18 or a higher numbered course.
Use of quantitative methods in geographic research. (Formerly Geography 85.)

197. Investigation and Report (3) I, II
Prerequisites: Senior standing as a geography major or as a social science major with a concentration in geography, and departmental consent.
Analysis of special topics in geography; independent study and investigation; guidance in the collection, organization, and presentation of geographic data.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: At least 15 units of A or B work in geography and consent of instructor.

GRADUATE COURSES

210. History of Geography (3)
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

220. Seminar in Regional Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of a major world region, such as South America, Southeast Asia and Northern Europe. May be repeated once with new content.

250. Seminar in Systematic Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. May be repeated once with new content.

280. Techniques of Field Research (3)
Prerequisites: Geography 180 and approval of departmental advisory committee.
Detailed and reconnaissance field work including classification of natural and cultural features and preparation of geographical reports and maps based on field data. May be repeated once with new content.

281. Seminar in Cartography (3)
Prerequisites: One course in cartography and approval of departmental advisory committee.
Use of the map in geographic analysis. Problems and recent trends in cartography. May be repeated once with new content.

285. Seminar in the Use of Quantitative Methods (3)
Prerequisites: Mathematics 18 or a higher numbered course in mathematics, Geography 185 or any upper division course in statistics, and approval of departmental advisory committee.
Application of quantitative methods to problems in human and physical geography. May be repeated once with new content.

295. Geographic Research and Techniques of Presentation (3)
Prerequisite: Approval of departmental advisory committee.
Seminar in the use of research materials in the different aspects of geography and the effective presentation of research findings in written and oral form.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

GEOLOGY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus: Brooks

Professors: Gastil, Roberts (Chairman), Thomas, B.

Associate Professors: Allison, Bassett, Berry, Peterson, G., Threet

Assistant Professors: Ptacek, Webster

Offered by the Department

Master of Science degree in geology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geology with the A.B. degree in liberal arts and sciences.

Major in geology with the B.S. degree in applied arts and sciences.

Minor in geology.

GEOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Preparation for the major. Geology 1A, or 2 and 3, 1B, 21, and 24; Chemistry 1A-1B; Engineering 2; Mathematics 22 or 50; and Physics 2A-2B and 3A-3B, or 4A-4B-4C. (39-45 units.) Recommended: Chemistry 4 or 5 or Geology 130, Mathematics 51, and a course in mechanical drawing if not completed in high school.

Major. A minimum of 24 upper division units in geology to include Geology 100, 106, 108A-108B, and 198A-198B. For the *geophysics* fields, the following courses should be taken in addition to the major: Mathematics 118A, Physics 103, 120A, and Geology 112.

GEOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

The major consists of basic requirements in the lower and upper division for all students plus the requirements in one of the following options: (a) General Physical or Economic Geology, (b) Paleontology and Stratigraphy, (c) Geophysics, and (d) Geochemistry.

BASIC REQUIREMENTS FOR ALL STUDENTS

Preparation for the major. Geology 1A, or 2 and 3, 1B, 21, 24; Chemistry 1A-1B; Engineering 2; and Biology 1 and 2. (32 units.) Recommended: A foreign language and a course in mechanical drawing if not completed in high school.

Major. A minimum of 36 upper division units in approved courses to include the following: Geology 100, 108A-108B, 124, 198A-198B, and 120 or 121 (20 units); plus the courses in one of the following options:

OPTIONS

In addition to the basic requirements, the student must complete the requirements in one of the following options:

(a) General Physical or Economic Geology

Additional preparation for the major. Mathematics 12 (or equivalent) and 50; Physics 2A-2B and 3A-B; and Chemistry 4 or 5 or Geology 130. (19-20 units.) Recommended: Mathematics 7.

Major (continued). Geology 106; and two of the following courses: Geology 105, 107, 110, 125; and electives approved by the departmental adviser to complete 36 upper division units.

(b) Paleontology and Stratigraphy

Additional preparation for the major. Biology 15; Mathematics 50, or 21 and 22 (Mathematics 21 and 22 should be taken only by students planning to pursue no academic work beyond the B.S. degree); Physics 2A-2B and 3A-3B. (16-17 units.)

Major (continued). Geology 106, 107, and 116; Biology 110 and two courses chosen from the following list, provided at least three units are chosen from upper division courses: Zoology 50 or 112, 60, 106, 114; Biology 113; Botany 172.

(c) Geophysics

Additional preparation for the major. Mathematics 50, 51, and 52; and Physics 4A-4B-4C. (25 units.) Recommended: Mathematics 7.

Major (continued). Mathematics 118A; Physics 101, 103, 105, and 110; Geology 110 and 112. (21 units.) Recommended: Mathematics 118B, Physics 114.

(d) Geochemistry

Additional preparation for the major. Chemistry 5 and 11 or 12; Physics 4A-4B-4C; Mathematics 50, 51, and 52. (33 units.) Recommended: Mathematics 7.

Major (continued). Geology 106, 125, 130; Chemistry 110A, and electives approved by the departmental adviser to complete 36 upper division units.

GEOLOGY MINOR

The minor in geology consists of from 15 to 22 units in geology, six units of which must be in upper division courses.

LOWER DIVISION COURSES

1A. Physical (4) I, II

Three lectures and three hours of laboratory with related field study during the semester.

The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Not open to students with credit for Geology 2.

1B. Historical (4) I, II

Three lectures and three hours of laboratory. Arrangement for field study during the semester.

Prerequisite: Geology 1A, or 2 and 3.

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

2. General Geology (3) I, II

No prerequisites.

Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology

3. General Geology Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Credit or concurrent registration in Geology 2.
Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 2. Not open to students with previous laboratory credit in geology.

14. Geomorphology (3) II
Prerequisite: Geology 1B.
Development and classification of land forms with consideration of processes involved.

21. Mineralogy (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: High school chemistry, or credit or concurrent registration in college chemistry.
Practice in the determination of the common minerals; their geologic environment, utilization and economic significance.

24. Petrology (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Geology 1A, or 2 and 3, and credit or concurrent registration in Geology 21.
The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics.

53. General Geology for Engineers (1) I, II
One three-hour laboratory or field project per week.
Prerequisite: Engineering 2 or 24.
Earth materials, geologic processes, and methods of geologic interpretation of particular concern to the engineer. Open only to students majoring in engineering. Not open to students with credit in Geology 3.

UPPER DIVISION COURSES

100. Structural Geology (3) I, II
Two lectures and three hours of laboratory per week with occasional field trips.
Prerequisites: Geology 1A and 1B.
Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

102. Geology of North America (3) II
Prerequisite: Geology 1B.
A regional analysis of North American geology, its structural, stratigraphic, and tectonic patterns and hypotheses concerning their origin and evolution.

105. Photogeology (3) II
Two lectures and three hours of laboratory.
Prerequisites: Geology 14 and 100.
Geologic interpretation of aerial photographs, elementary stereoscopy and stereometry applied to structural and stratigraphic problems, and compilation of geologic maps from annotated aerial photographs.

106. Paleontology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Geology 1B and Biology 1 and 2.
Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

107. Principles of Stratigraphy (3) II
Two lectures and three hours of laboratory.
Prerequisites: Geology 24 and 106.
Procedures used in analysis, correlation, and classification of stratigraphic units. The chronologic significance of the important physical and biological criteria.

108A. Field Geology (4) II
One lecture per week and 12 Saturday field sessions in the local area.
Prerequisites: Geology 24 and 100, and Engineering 2.
Techniques and methods of geologic observation, interpretation, and field mapping.

108B. Field Geology (4) I
Prerequisite: Geology 108A.
Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

110. Introduction to Geophysics (3) I
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 22 or 50, Physics 2B and 3B or equivalents, and Geology 100 or concurrent registration therein.
Physics of the earth and its application to prospecting for oil, gas, and mineral deposits.

112. Advanced Geophysics (3) II
(Offered in alternate years)
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 52, Physics 103 and 110, and Geology 110.
Theoretical principles underlying the physics of the earth and their application to the design and the operation of geophysical instruments, and to the interpretation of the geophysical records.

116. Micropaleontology (3) II
Two lectures and three hours of laboratory.
Prerequisite: Geology 106.
A study of the morphology, classification and geologic significance of the various microfossils.

118-S. Summer Field Problems (4-6)
Prerequisite: Geology 108A and consent of instructor.
The employment of field techniques in the investigation of selected geological problems. This course cannot be substituted for Geology 108B.

119-S. Summer Field Tour (2)
Prerequisite: Consent of instructor.
A two-week study of some of the classic geologic localities in the western United States. A camping trip with travel by chartered bus. Localities visited may vary from year to year. May be repeated for a maximum of four units.

120. Ore Deposits (3) I
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits.

121. Petroleum Geology (3) II
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

124. Optical Mineralogy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Geology 21.
Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

125. Petrography (4) II

Two lectures and six hours of laboratory.

Prerequisite: Geology 124.

A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

130. Geochemistry (3) II

Two lectures and three hours of laboratory.

Prerequisites: Geology 24 and Chemistry 1B.

The relationship of basic chemical principles to geologic phenomena and environments, including applications to geologic exploration problems.

166. Honors Course (Credit to be arranged) I, II

Special work in any of several phases of geologic science for students of demonstrated ability. Refer to the Honors Program.

198A. Senior Research (1) I, II

Prerequisite: Credit or concurrent registration in Geology 108A.

Three hours of laboratory and discussions.

Selection and design of an individual research project. Oral and written progress reports.

198B. Senior Research (2) I, II

Six hours of laboratory and discussions.

Prerequisites: Geology 198A and Geology 108B.

Individual research project, involving field work in a selected field of geology, with oral reports of progress to the class and a final oral and written report of work accomplished.

199. Special Study (1-4) I, II

Individual study in field, library, laboratory, or museum work. Four units maximum credit.

Prerequisites: Acceptable grade average in at least 12 upper division units within the major and consent of staff.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study in advanced geology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Advanced Petrology and Mineralogy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 125.

Modern theoretical petrology with emphasis on applications to igneous and metamorphic rocks. X-ray, universal stage, mineralography, and other laboratory techniques and their application to geologic problems.

220. Biostratigraphy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 107.

Stratigraphic and geochronologic synthesis of geological events and their relationship to the temporal and spatial distribution of life forms. Laboratory analysis of biological data applied to stratigraphic problems.

230. Sedimentology (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 124.

Classification, distribution, and origin of sedimentary deposits and the theory of their interpretation. Mechanical, chemical, and optical analysis of detrital and chemical sediments and sedimentary rocks and their depositional structures.

240. Regional Tectonics (3)
Prerequisite: Geology 100.

A consideration of topics on continental origin, ultimate orogenic force, mechanics of earth deformation and geosynclinal theory, with a survey of classic geologic provinces, and individual projects utilizing techniques of regional synthesis.

297. Research (1-6)
Prerequisite: Consent of department.

Supervised research in an area of geology.

298. Special Study (1-3)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a thesis for the master's degree.

GERMAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus: Walker
Professors: Lawson, Wolf, E.
Associate Professors: Boney, Dukas (Chairman German-Russian), Dunkle, Paulin
Assistant Professors: Herrmann, Schaber, Tanaka, Westervelt, Wulbern

Offered by the Department of German and Russian

Master of Arts degree with a major in German. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in German with the A.B. degree in liberal arts and sciences.

Minor in German.

Teaching major in German with specialization in both elementary and secondary teaching.

Teaching minor in German with specialization in both elementary and secondary teaching.

GERMAN MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in German must complete a minor in another field to be approved by the departmental adviser in German.

Preparation for the major. German 1, 2, 3, 4, 10, and 11. (20 units.)

Major. A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, and 12 units in the period literature of the language.

GERMAN MINOR

The minor in German consists of from 15 to 22 units in German, six units of which must be in upper division courses.

GERMAN MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Proficiency Examination: Before taking a student teaching assignment in German, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

Specialization in Elementary Teaching

Preparation for the major. German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major. Twenty-four upper division units to include German 101A–101B, 102A–102B, 122, 140, 141, 150, and three upper division units of electives in German. In addition to the major, credential candidates must complete Education 136.

Specialization in Secondary Teaching

Preparation for the major. German 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in German to include German 101A–101B, 102A–102B, 122, 140, 141, and six upper division units of German in the period literature of the language.

Postgraduate Year. Six units of graduate courses in German.

GERMAN MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Proficiency Examination: Before taking a student teaching assignment in German, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

Specialization in Elementary Teaching

The minor in German for elementary teaching consists of not less than 20 units in German, six units of which must be in upper division courses.

Specialization in Secondary Teaching

The minor in German for secondary teaching consists of not less than 20 units in German, exclusive of course equivalents, to include in the lower division, German 1, 2, 3, 3, 10, and 11 (or equivalents); and in the upper division, German 101A–101B, 102A–102B, and 122.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school German may be counted as the equivalent of German 1; three years the equivalent of German 2; and four years the equivalent of German 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: German 1 or two years of high school German.

Continuation of German 1.

3. Intermediate (4) I, II

Prerequisite: German 2 or three years of high school German.

A practical application of the fundamental principles of grammar. Reading in German of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) I, II

Prerequisite: German 3 or four years of high school German.

Continuation of German 3.

7A-7B. Intensive Reading Course in German (2-2)

Prerequisites: German 1 and 2 or three years of high school German.

Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in German.

8A-8B. Scientific Reading (2-2)

Prerequisite: German 2 or three years of high school German.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc.

10. Conversation (2) I, II

Prerequisite: German 2 or three years of high school German.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: German 10 or German 3, or four years of high school German.

Continuation of German 10.

UPPER DIVISION COURSES

101A-101B. Oral and Written Composition (3-3)

Prerequisites: German 4 and 11.

Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German.

102A-102B. Survey Course in German Literature (3-3)

Prerequisite: German 4.

A study of important movements, authors, and works in German literature from the Middle Ages to the present.

103A-103B. German Literature of the Eighteenth Century (3-3)

Prerequisites: German 4 and 11.

An introduction to the literature of the German Enlightenment, the "Storm and Stress," the Classical Age. Outside readings and reports.

105A-105B. German Literature of the 19th Century (3-3)

Prerequisites: German 4 and 11.

An introduction to the literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

107. German Literature from its Beginning to the Reformation (3)
Prerequisites: German 4 and 11.
Poetry, drama, and prose of the Old High German, Middle High German, and early New High German periods, the early texts to be read in modern German adaptations.

108. Renaissance and Baroque Literature (3)
Prerequisites: German 4 and 11.
German literature of the 16th and 17th centuries.

110A-110B. Contemporary German Literature (3-3)
Prerequisites: German 4 and 11.
An introduction to the main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

114. Goethe (3)
Prerequisites: German 4 and 11.
Goethe's lyric, epic, and dramatic poetry (excluding *Faust*).

115. Goethe's *Faust* (3)
Prerequisites: German 4 and 11.
Goethe's *Faust*, Parts 1 and 2, its philosophical contents and its position in German and European literature; lectures, reading, reports.

116. Schiller (3)
Prerequisites: German 4 and 11.
Schiller as poet, dramatist, critic and philosopher, with emphasis on his classical period.

122. The Foreign Language Laboratory (2)
Conducted in English.
Prerequisite: Admission to Teacher Education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, Italian, Russian, or Spanish 122. To be taken concurrently with Education 121E.

125A-125B. Advanced Oral and Written Composition (2-2)
Prerequisite: German 101A-101B.
Advanced forms of oral and written German.

130. German Syntax and Stylistics (2)
Prerequisites: German 101A-101B.
Theoretical and practical study of the structure of German prose.

140. German Civilization (2) I
Prerequisites: German 4 and 11.
Conducted in German. Primarily for German majors and minors.
An advanced course in German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. German Civilization (2) II
Prerequisites: German 4 and 11.
Conducted in German. Primarily for German majors and minors.
Continuation of German 140.

148. Applied German Linguistics (3)
Prerequisites: German 101A-101B.
Linguistic study of modern German; integration of modern linguistic theory with the language classroom.

150. German Phonology (2)
Prerequisites: German 4 and 11.
Intensive study of the sounds, intonation, and elocution of German.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in German available in any given semester.

GRADUATE COURSES

201. History of the German Language (3)
Prerequisite: 12 units of upper division German.
The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.

202. Middle High German (3)
Prerequisite: 12 units of upper division German.
The grammatical structure of Middle High German, with readings from the "Nibelungenlied," "Parzival," "Tristan und Isolde," and from the lyric poets of the period.

203. The German Novelle (3)
Prerequisite: 12 units of upper division German.
The development of the Novelle as a literary form from Goethe to the present.

204. The German Novel in the Twentieth Century (3)
Prerequisite: 12 units of upper division German.
The German novel from the beginning of the twentieth century with special emphasis on the works of Thomas Mann, Hermann Hesse, and Franz Kafka.

205. German Lyric Poetry from Hölderlin to Rilke (3)
Prerequisite: 12 units of upper division German.
The major German lyric poets from the beginnings of Romanticism to Rilke.

206. German Drama of the 19th Century (3)
Prerequisite: 12 units of upper division German.
Representative works of German dramatic literature from Kleist to Hauptmann.

240. German "Geistesgeschichte" in the 19th and 20th Centuries (3)
Prerequisite: 16 units of upper division German including German 140 and 141.
Dominant ideas in German culture since 1800 with emphasis on philosophical, historical, social, political, and scientific thought, and on the intellectual contents of literary works. Based on the reading of German sources.

251. Seminar in Eighteenth-Century Literature (3)
Prerequisite: 18 units of upper division German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the eighteenth century. Maximum credit six units applicable on a master's degree.

255. Seminar in Nineteenth-Century Literature (3)
Prerequisite: 18 units of upper division German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the nineteenth century. Maximum credit six units applicable on a master's degree.

260. Seminar in Twentieth-Century Literature (3)
Prerequisite: 18 units of upper division German.
Directed research in the works of an important author or in a problem, type, or movement of German literature of the twentieth century. Maximum credit six units applicable on a master's degree.

265. Seminar in Germanic Linguistics (3)
Prerequisite: 18 units of upper division and/or graduate German.

Directed research in a specialized area of Germanic linguistics or philology. Maximum credit six units applicable to a master's degree.

290. Research and Bibliography (3)
Prerequisite: 12 units of upper division German.

Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisites: 18 units of upper division German and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

GREEK

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in Greek are drawn from departments in the Division of Humanities.

Offered by the Division of the Humanities

Courses in Greek.

Major or minor work in Greek is not offered. A minor in Classics, described in this section of the catalog under Humanities, is offered.

LOWER DIVISION COURSES

1. Elementary (4) I
Introduction to Attic Greek, emphasizing intensive reading in Attic prose.

2. Elementary (4) II
Prerequisite: Greek 1 or equivalent.
Continuation of Greek 1.

53. Intermediate Greek Composition (2)
Prerequisite: Greek 2.
Translation of moderately difficult English prose passages into Attic Greek.

54. Intermediate Greek Composition (2)
Prerequisite: Greek 53.
Continuation of Greek 53.

UPPER DIVISION COURSES

103. Readings in Classical Greek (3) I
Prerequisite: Greek 2.
Intensive reading in classical authors, such as Xenophon, Plato, and Sophocles.

104. Readings in Classical Greek (3) II
Prerequisite: Greek 103.
Continuation of Greek 103.

105. Homer (3)
Prerequisite: Greek 104.
Readings from the *Iliad* and the *Odyssey*.

106. Greek Tragedy (3)
Prerequisite: Greek 104.
Reading of several complete Attic tragedies, selected from the works of Aeschylus, Sophocles, and Euripides.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

HEALTH EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Emeritus: Kitzinger

Professors: Grawunder, Harper

Associate Professors: Burgess (Chairman), McTaggart

Assistant Professors: Boskin, Fellers

Lecturers: Escamilla, Huff

Offered by the Department

Master of Arts degree for teaching service with a concentration in health education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in health education with the B.S. degree in applied arts and sciences.

Minor in health education.

Teaching major in health sciences with specialization in secondary teaching.

Teaching minor in health sciences with specialization in both elementary and secondary teaching.

HEALTH EDUCATION MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Health Education 29, 65; Home Economics 4A; Zoology 8, and either Biology 9, or 22 plus 23; Psychology 12; Biology 1; and Sociology 1. (23 units.)

Major. A minimum of 36 upper division units to include Health Education 100. 145, 146, 150, or 151, 153, 169, 192, Ed. 121P; the remaining units to be selected from Health Education or closely related fields with approval of adviser.

HEALTH EDUCATION MINOR

The minor in health education consists of from 15 to 22 units in health education, nine units of which must be in upper division courses approved by the departmental adviser in health education; courses to include Health Education 100, and 65 or 160.

HEALTH SCIENCES MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as a major in health education for the B.S. degree in applied arts and sciences.

Specialization in Secondary Teaching

Preparation for the major. Health Education 29, 65; Biology 1; Home Economics 4A; Zoology 8, and either Biology 9, or 22 and 23; Sociology 1 and 35. (23 units.)

Teaching Major (Undergraduate). A minimum of 36 upper division units to include Health Education 100, 145, 146, 151, 153, 160 or 169, 176 or 192; Psychology 106; Sociology 140; and Education 121P; remaining units to be selected from Health Education and closely related fields.

Postgraduate Year. Six units of postgraduate courses in the major or minor acceptable toward the credential.

HEALTH SCIENCES MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in health sciences for elementary teaching consists of 21 units to include Health Education 21, 29, and 65; and in the upper division 15 units to include Health Education 100, 145, 146, 150, and four units of electives. In addition, students must complete Education 121P. Courses should be selected in consultation with the departmental adviser in health education.

Specialization in Secondary Teaching

The minor in health sciences for secondary teaching consists of 21 units to include Health Education 21, 29, and 65; and in the upper division 15 units to include Health Education 100, 145, 146, 151, and four units of electives. In addition, students must complete Education 121P. Courses should be selected in consultation with departmental adviser in health education.

LOWER DIVISION COURSES

21. Principles of Healthful Living (2) I, II, Summer

An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. A required general education course. Fulfills statutory requirement in public safety.

29. Physiology of Reproduction (1) I, II

A series of lectures and discussions dealing with normal and abnormal physiology and anatomy of reproduction; facts and frauds in sex hygiene, and related topics.

65. Community Health (3) I, II

Community health problems; the role of the citizen, of the public, and of community health agencies in promoting and protecting the health of the community.

UPPER DIVISION COURSES

100. Introduction to Health Education (3) I

History and principles of health education and its role in modern society. An orientation course for students with a professional interest in health education.

145. Safety Education and Accident Prevention (3) I, II

Principles of safety and safety education as applied to the home, school, industry, traffic, recreation, and fire prevention.

146. Instructor's Course in First Aid (3) I, II, Summer
Standard Red Cross course for instructors in first aid plus medical-legal problems of emergency care of accident victims. (Formerly Physical Education 161.)

147. Traffic Safety and Driver Education (3) I, II, Summer
Analysis of traffic accidents including pedestrian accidents; natural laws and traffic laws as applied to traffic safety; safe use and care of vehicles; instructional approaches.

148. Advanced Driver Education and Driver Training (3) I, II, Summer
Prerequisite: Health Education 145 and 147.
Principles and procedure in organizing, conducting, and supervising programs in driver education and driver training including psycho-physical testing; behind-the-wheel training; teaching with simulators.

150. Health Education for Elementary Teachers (2) I, II, Summer
The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Education 151.

151. Health Education for Secondary Teachers (2) I, II, Summer
Health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Education 150.

153. Administration of the School Health Program (3) II
Administrative responsibilities and procedures in organizing and conducting the school health program. Principles, policies, and practices involved in instruction, service, environment, and community relationships.

154. Workshop in Health Education (2) Summer
For elementary and secondary administrators, school nurses, and teachers. The workshop provides opportunities for participants to work together toward the improvement of the total school health program in such areas as health instruction, health services, health environment, and community health. May be taken three times for credit.

160. Introduction to Public Health (3) I
Prerequisite: Health Education 65.
Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

169. World Health (3) II
Prerequisite: Health Education 65.
Health status of selected populations; international approaches to the attainment of world health. Special emphasis on the work of the World Health Organization.

171. Institute on Current Health Issues (1) I, II, S
A critical appraisal and analysis of selected contemporary health issues. May be repeated with different subject matter. Maximum of three units may be applied toward a bachelor's degree.

175. Health in Later Maturity (3) I
An approach to the conservation of human resources, with particular emphasis on understandings, attitudes, and practices related to health in later maturity. Designed for those with a personal or professional interest in the field.

176. Health and Medical Care (3) II

Prerequisite: Senior or graduate standing with a major or minor in health education or closely related areas.

Health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit in Sociology 121.

192. Critical Analysis of Professional Literature (3) II

Investigation and study of selected literature in the field which has important bearing on health, physical education, and recreation programs in the school and community. Evaluation of literature content on basis of specific critera.

197. Supervised Field Experience (1-3) I, II

Prerequisite: Senior standing and consent of the chairman of the department.

Supervised practical experience in local health agencies.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of the special study adviser.

GRADUATE COURSES

200. Seminar (3)

Prerequisite: Fifteen units completed in Health Education.

An intensive study of advanced problems in health education. Maximum credit six units applicable on a master's degree.

201. Interdisciplinary Factors in Health Education (3)

Prerequisite: Fifteen units completed in Health Education.

Synthesis of basic scientific and cultural principles which contribute to an understanding of human well-being and how it is deliberately influenced.

202. Measurement and Evaluation in Health Education (3)

Prerequisite: Health Education 153.

General and specific approaches to measurement in Health Education; data gathering techniques; organization, presentation, and interpretation of data; basic principles of evaluation of student achievement.

245. School Safety Programs and Procedures (3)

Prerequisite: Health Education 145.

Advanced consideration of school safety programs including legal bases and requirements, personnel responsibilities, liability, instruction, maintenance, and school transportation.

270. Communicable and Non-Communicable Disease (3)

Prerequisite: Undergraduate major or minor in Health Education.

Study of selected diseases. Individual investigation and discussion.

271. Habit-forming and Addicting Drugs (3)

Prerequisite: Undergraduate major or minor in Health Education.

Non-medical use of stimulants and depressants; habituation, addiction, and control. Individual investigation and discussion.

298. Special Study (1-6)

Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

Individual study. Six units maximum credit.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

HISTORY

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Hanchett (Chairman), Merrill, Nasatir, Pincetl, Rader, Ragen, Ridout, Rohfleisch, Webb

Associate Professors: Berge, Coox, Munter, Norman, Ruetten, Smith, R.

Assistant Professors: Appleby, Bartholomew, Chu, Cox, Cunniff, Hoidal, O'Brien, Reid, Schatz, Smith, C., Starr, Steele, Stoddart, Strong, Sutherland, Weber

Lecturer: DuFault

Offered by the Department

Master of Arts degree with a major in history; and a Master of Arts degree for teaching service with a concentration in history. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in history with the A.B. degree in liberal arts and sciences.

Minor in history.

Teaching major in history with specialization in secondary teaching.

Teaching minor in history with specialization in secondary teaching.

HISTORY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Preparation for the major. History 4A-4B or 8A-8B. (6 units.) Recommended: Both 4A-4B and 8A-8B; and Political Science 1 and 2, or Economics 1A-1B. No freshman shall enroll in more than one lower division course in history during any one semester without permission of the major adviser.

Major. A minimum of 24 upper division units in history to include History 198 and a minimum of a year of concentration in **each of three** of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) South and East Asia; (f) Africa and the Middle East. These courses must be selected under the guidance of the chairman of the department.

HISTORY MINOR

The minor in history consists of from 15 to 22 units in history to include six sequence units in the lower division. At least nine units must be in upper division courses, including a year course.

HISTORY MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the undergraduate major for the A.B. degree in liberal arts and sciences, as outlined above, with the provision that a minimum of a year concentration in U.S. history must be included in the upper division work. In addition, students must complete, in the postgraduate year, a minimum of six upper division or graduate units, including at least one 200-level directed reading course.

HISTORY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The minor in history for secondary teaching consists of a minimum of 21 units to include the following courses: in the lower division, History 4A-4B, or 8A-8B, or 17A-17B; and 15 additional units in History to include not less than 12 upper division units selected with the approval of the adviser.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U. S. history, U. S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) History 17A and 17B or 172A and 172B or 184A and 184B.
(2) History 8A and 8B plus an approved test or course on the U.S. Constitution.
(3) History 176A and 176B, or 179A and 179B, or 181A and 181B plus approved tests or courses on (a) the U. S. Constitution and (b) California government.
(4) History 189B plus approved tests or courses on (a) U. S. history and (b) the U. S. Constitution.
(5) History 177A and 177B plus an approved test or course on California government.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

LOWER DIVISION COURSES

4A-4B. Western Civilization (3-3)
Prerequisite: History 4A is prerequisite to History 4B.
European institutions, culture, and thought from ancient times to the present.

8A-8B. The Americas (3-3)
Survey of the history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government.

9A-9B. Asian Civilization (3-3)
Asian institutions, cultures, and thought from ancient times to the present. Semester I: Traditional Asian civilization. Semester II: Asia since the impact of the West.

17A-17B. American Civilization (3-3)
Prerequisite: History 17A is prerequisite to History 17B.
Survey of the political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U.S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. Ordinarily not open to students with credit for Political Science 2, 71A, or 71B. History 17A-17B may be taken by such students with the consent of the chairman of the History Department.

UPPER DIVISION COURSES

101A-B. The Contemporary World in Historical Perspective (3-3)
Prerequisite: History 4B.
Trends and developments in the recent past which can contribute to an understanding of the problems of our age.

102. Introduction to Great Historians and Historical Literature (3) I, II
Lectures and readings in the history of history and the works of major historians. Open to all upper division students; especially recommended for history and social science majors. (Formerly numbered History 197.)

111A-111B. Ancient History (3-3)
Fall semester: Greece to the Roman Conquest.
Spring semester: Rome to the 5th century A.D.

121A-121B. Europe in the Middle Ages (3-3)
Prerequisite: History 121A is prerequisite to History 121B.
European social, cultural, and political developments from the fall of Rome to the Renaissance.

131A-131B. Renaissance and Reformation (3-3)
Persons and events connected with the social, political, cultural, economic and religious change between 1300 and 1600. 131A not open to students with credit for History 132-S.

141A-141B. Europe in the 17th and 18th Centuries (3-3)
Prerequisite: History 141A is prerequisite to History 141B.
Europe from the Thirty Years War to the French Revolution. Emphasis is on Western Europe and the growth of French preponderance. First semester: The rise of absolutism to 1713. Second semester: The Enlightenment and the nature of the "old regime" to the eve of revolution.

142A. The French Revolution and Napoleonic Era (3) I
France on the eve of the Revolution; the Great Revolution, 1789-1799, the Napoleonic Era.

142B. Modern France (3) II
The development of France since 1815.

143A-143B. Intellectual History of Europe in the 19th Century (3-3)
Prerequisite: History 4A-4B, or equivalent knowledge of European history; History 143A is prerequisite to 143B.
An analysis of the dominant ideas of the 19th century. Course work is based primarily upon contemporary source materials.

144A-144B. Europe in the 20th Century (3-3)
Prerequisite: History 144A is prerequisite to History 144B.
Political and social developments from 1870 to the present.

145A-145B. Diplomatic History of Modern Europe (3-3)
Diplomatic relations of the various European states with European and non-European powers. First semester: From the Concert of Europe (1815) to the Era of *Realpolitik* in the late 19th century. Second semester: The diplomatic backgrounds and results of two wars.

146A-146B. Germany and Central Europe (3-3)
Prerequisite: History 4A-4B, or equivalent knowledge of European history.
The political, social, and cultural record of the Germanic peoples of Northern and Central Europe from Tacitus to the present.

147A-147B. Russia and the Soviet Union (3-3)
Political, social, and economic development of Russia in Europe and Asia from the earliest times to the present. Second semester: Emphasis on the 20th century.

149A-149B. Modern Spain and Italy (3-3)
A cultural and political survey of two major source areas of Western Civilization in modern times. Semester I: The Iberian Peninsula; Semester II: Italy.

151A-151B. England (3-3)
Prerequisite: History 151A is prerequisite to History 151B.

Political and social history of England from the earliest times to the present day, stressing the origins of American institutions and social patterns. Recommended for majors in English.

152A-152B. Constitutional History of England (3-3)
Evolution of the common law and the development of parliamentary institutions.

153A-153B. Tudor and Stuart England (3-3)
Semester I: The Age of the Tudors. Semester II: England during the Stuart Dynasty, 1603-1714.

154A-154B. Modern Britain (3-3)
First semester: The development of constitutional and social patterns from the Glorious Revolution to the French Revolution, emphasizing the immediate background to the American Revolution. Second semester: The French Revolution, the rise of parliamentary democracy, the Victorian age and political thought from the Utilitarians to the Fabians.

156. The Byzantine Empire and Its Successors (3)
History and civilization of the traditional Near East from the founding of Constantinople in 330 A.D. to the present day. The latter part of the course will stress the decline of the Ottoman Turks and the establishment of modern national states in the region.

157. The Arab States, Israel, and Iran (3)
History and civilization of the Arab World and the Middle East from the rise of Islam in the 7th century to the present day. The expansion of the Arabs, the institutions of Islam, the penetration of Western ideas, the development of nationalism, and the interests and foreign policy of America in this strategic area will be stressed.

158A-158B. Africa (3-3)
Semester I: The historical development of North Africa; the growth and decline of imperialism, especially in French North Africa. Semester II: The history of Africa south of the Sahara.

160A-160B. Latin America (3-3)
Semester I: Colonial Period to approximately 1825. Semester II: Republican Latin America. Not open to students with credit in History 8A-8B.

161. Mexico (3) I
Prerequisite: History 8A-8B or 160A-160B.

An intensive study of colonial and modern Mexico with special emphasis on the 20th century.

162. Argentina, Brazil, and Chile (3) II
Prerequisite: History 8A-8B or 160A-160B.

An intensive study of the three leading Hispanic Powers of South America.

163. The Caribbean Area (3)
Prerequisite: History 8A-8B or 160A-160B.

The development of Central America and the Spanish Main with emphasis on the 20th century.

164. History of the Andean Countries (3)
The fusion of Andean cultures and institutions with those of Spain to form the modern nations of Ecuador, Peru and Bolivia. Emphasis on recent problems and conditions.

165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)
Prerequisites: At least nine units in Latin American History and some acquaintance with the Spanish language.

Designed for students in the Latin American Studies program, foreign trade, and foreign service.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167A-167B. Diplomatic History of Latin America (3-3)
Origins of Inter-Americanism; relations among the Latin American nations; the origins and development of the American States; Latin America in World Affairs.

171A-171B. Rise of the American Nation (3-3)
Prerequisite: History 171A is prerequisite to History 171B.

The settlement and development of the British colonies in North America and the American Revolution. Stresses the creation of the American nation through modification of Old World institutions in the new environment.

172A-172B. Development of the Federal Union (3-3)
Prerequisite: History 172A is prerequisite to History 172B.

Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideals; 172A meets the requirement in U. S. Constitution; and 172B includes materials which meet the requirements in California state and local government.

173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)
Prerequisite: History 173A is prerequisite to History 173B.

Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

174. Emergence of the United States as a World Power (3) I, II
Postwar reconstruction and economic developments to the close of the nineteenth century.

175A-175B. The United States, 1901-1945 (3-3)
The age of reform and the United States as leader of the free world.

175C. The United States in the Nuclear Age (3)
The United States since World War II.

176A-176B. American Foreign Policy (3-3)
Lectures and readings in the field of American foreign relations since 1776, with special emphasis, in the second semester, upon affairs since 1900. A general survey course. This year-course meets the graduation requirement in American history, institutions and ideals.

177A-177B. Constitutional History of the United States (3-3)
American constitutional history since the establishment of the federal government. This year course meets the graduation requirement in U.S. Constitution and in American history, institutions and ideals.

178A-178B. The Development of American Capitalism (3-3)
A study of the changes in agriculture, industry, labor, banking, transportation, and commerce in a capitalist society with special emphasis on the prominent personalities who made the changes possible.

179A-179B. Intellectual History of the American People (3-3)
A study of the ebb and flow of ideas in the United States since the founding of the English colonies, with special attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals.

180. Selected Studies in History (3)
Topics in the various fields of history, such as biography, war, science, technology, urbanization, minority groups, immigration, and capitalism. May be repeated for a maximum of six units.

181A-181B. The Westward Movement (3-3)
The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon frontier problems of defense, communications, finance, etc.; the development of cultural institutions. A critical examination of the causes, effects and results of the frontier experiences of the American people. This year course meets the graduation requirement in American history, institutions and ideals.

182A-182B. The Spanish Borderlands and the American Southwest (3-3)
Semester I: Development and colonization of the Spanish Southwest; the growth and influence of Spanish institutions. Semester II: United States' acquisition of the Southwest; the development and problems of expansion, water, industry, transportation, immigration, culture, and agriculture in the region of semi-aridity.

184A-184B. United States History (3-3)
United States history, 1492-present. Primarily for history minors and social science majors and minors. Semester I: to 1877; Semester II: 1877 to present. Not open to students who have completed History 17A-17B or equivalent.

189A-189B. California (3-3)
Political institutions; social, cultural, economic, and intellectual development; international background. Semester I: to 1879: Spanish and Mexican heritage. Semester II: 1879 to the present. History 189B will fulfill the requirement in California state and local government.

190A-190B. Southeast Asia (3-3)
Semester I: Cultural traditions of Southeast Asian peoples. Indigenous institutions and the influence of China, India, and Islam. Semester II: Southeast Asia in the modern world. Patterns of foreign stimulus and local response among the peoples of the area.

191A-191B. The Far East (3-3)
Particular, but not exclusive, emphasis on Asian-Western relations. Semester I: Through the 19th century. Semester II: The 20th century.

192. Chinese Civilization (3) I
Chinese internal history and institutions during the period of relative isolation; religions, philosophy, literature, and the arts.

193. China in Modern Times (3) II
The impact of the West on China's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

194. Japanese Civilization (3) I
Japanese internal history and institutions during the period of indigenous development and Chinese influence including religions, philosophy, literature, and the arts.

195. Rise of Japan as a Modern State (3) II
The impact of the West on Japan's history and civilization, particularly in the nineteenth and twentieth centuries with emphasis on internal developments.

196A-196B. The Indian Sub-Continent (3-3)
Semester I: The historical and cultural development of the sub-continent from earliest times through Muslim rule. Semester II: British rule and its legacy in the sub-continent. The international relations of India and Pakistan.

197A-197B. Intellectual History of Modern Asia (3-3)
Asian intellectual history during the 19th and 20th centuries, with special attention to social and political thought.

198. The Writing of History (3) I, II
Prerequisite: History major or 12 upper division units of history.
Historical method and research in some aspect of history.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of department chairman and instructor.

GRADUATE COURSES

NOTE: All graduate courses have a prerequisite of 12 units of upper division history, including specific prerequisites in history, or consent of the instructor.

201. Seminar in Historical Method (3)
General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history.

202. Seminar in Historiography (3)
Prerequsite: History 102.
A critical study of the works of major historians, their philosophies, and the schools of scholarship associated with their work.

241. Directed Reading in United States History (3)
Prerequisite: Six upper division units in United States history.
Selected readings in source materials and historical literature in a designated area of United States history. Maximum of six units applicable to a master's degree. (Formerly numbered History 278.)

242. Directed Reading in European History (3)
Prerequisite: Six upper division units in European history.
Selected readings in source materials and historical literature in a designated area of European history. Maximum of six units applicable to a master's degree.

243. Directed Reading in Asian History (3)
Prerequisite: Six upper division units in Asian history.
Selected readings in source materials and historical literature in a designated area of Asian history. Maximum of six units applicable to a master's degree. (Formerly numbered History 290.)

244. Directed Reading in Latin American History (3)
Prerequisite: Six upper division units in Latin American history.
Selected readings in source materials and historical literature in a designated area of Latin American history. Maximum of six units applicable to a master's degree.

245. Directed Reading in African History (3)
Prerequisite: Six upper division units in African history.
Selected readings in source materials and historical literature in a designated area of African history. Maximum of six units applicable to a master's degree.

251. Seminar in United States History (3)
Prerequisite: Six upper division units in United States history.
Directed research on topics selected from a designated area of United States history. Maxium of six units applicable to a master's degree.

252. Seminar in European History (3)
Prerequisite: Six upper division units in European history.
Directed research on topics selected from a designated area of European history. Maximum of six units applicable to a master's degree.

253. Seminar in Asian History (3)
Prerequisite: Six upper division units in Asian history.
Directed research on topics selected from a designated area of Asian history. Maximum of six units applicable to a master's degree.

254. Seminar in Latin American History (3)
Prerequisite: Six upper division units in Latin American history.
Directed research on topics selected from a designated area of Latin American history. Maximum of six units applicable to a master's degree.

255. Seminar in African History (3)
Prerequisite: Six upper division units in African history.
Directed research on topics selected from a designated area of African history. Maximum of six units applicable to a master's degree.

297. Research (3)
Prerequisite: Advancement to candidacy.
Independent research in a specialized subject in history.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

HOME ECONOMICS

IN THE DIVISION OF THE FINE ARTS

Faculty

Emeritus: Comin, Talboy

Professor: Cannon (Chairman)

Associate Professors: Campbell, Dorris, Thomas, A.

Assistant Professors: Anderson, Z., Martin, M., Nordquist, Reed, Schupp, Somerville

Lecturers: Clay, Price

Instructor: Dickerson

Offered by the Department

Master of Science degree in home economics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in home economics with the A.B. degree in applied arts and sciences.

Minor in home economics.

Teaching major in home economics with specialization in secondary teaching.

Teaching minor in home economics with specialization in secondary teaching.

HOME ECONOMICS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

The major in home economics is available in two areas of emphasis: (1) General home economics and (2) Food and nutrition.

MAJOR WITH EMPHASIS IN GENERAL HOME ECONOMICS

Preparation for the major. Home Economics 2, 3, 15, 35, 40, 45, 70; Anthropology 1C; Art 2A; Biology 1; Chemistry 2A-2B; Economics 1A; Physics 5; and Sociology 1. (44 units.)

Major. A minimum of 24 upper division units to include Home Economics 100, 115, 135, 143, 151, 152, 171, and three units selected from home economics courses.

MAJOR WITH EMPHASIS IN FOOD AND NUTRITION

This program is planned for students interested in qualifying professionally in the field of dietetics, institutional food management or commercial home economics. A student who successfully completes this program and receives departmental recommendation is eligible to apply for a year of internship under auspices of the American Dietetic Association. Upon completion of an administrative food clinic or dietetic internship, or a three-year apprenticeship under a qualified dietitian in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietitian. Additional food and nutrition careers include extension service, teaching, business, health agencies and research.

Requirements

Preparation for the major. Home Economics 2, 3, 4A, 15, 35, 40, 45, 70; Art 2A; Biology 1, 2; Business Administration 1A; Chemistry 2A-2B, 3; Economics 1A; Physics 5; Sociology 1; and Biology 22. (53 units.)

Major. Thirty-seven units to include Home Economics 100, 102, 103, 104, 105, 106, 151, 152, 180; Microbiology 101; Psychology 106; and six units to be selected with consent of the adviser, from Business Administration.

HOME ECONOMICS MINOR

The minor in Home Economics consists of 18-22 units of home economics courses, six units of which must be upper division courses.

HOME ECONOMICS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the degree with an emphasis in general home economics as outlined above. In addition, students must complete, in their postgraduate year, six upper division or graduate units in home economics acceptable toward the credential and selected with approval of the adviser.

HOME ECONOMICS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The minor in Home Economics consists of 18-22 units of home economics courses, six units of which must be upper division courses. Courses for the minor for secondary teaching must be selected with the approval of the adviser.

LOWER DIVISION COURSES

1. Fundamentals of Home and Family Life (3) I, II

General concepts of family relationships and effective use of family resources. General Education course open to men and women. Not open to Home Economics majors.

2. Orientation to Home Economics as a Profession (1) I, II

One lecture.

Introduction to the opportunities and requirements in various professional fields for home economists.

3. Food and Nutrition (3) I, II

One lecture and six hours of laboratory.

Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems.

4A. Fundamentals of Nutrition (2) I, II

Nutrition as applied to the stages of the normal life cycle.

4B. Nutrition Laboratory (1) Irregular

Three hours of laboratory.

Prerequisite: Limited to students in the nursing program.

Principles of nutrition applied to food preparation, meal planning, and special diets.

14-S. Workshop for School Lunch Personnel (1) Summer

Open to school lunch personnel only.

The following areas are included:

A. Nutrition for School Lunches.
B. Beginning Meal Planning.
C. Food Purchasing.
D. Sanitation and Safety.
E. Work Simplification and Personnel Management.
F. Advanced Menu Planning.
G. Record Keeping and Cost Analysis.

No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit seven units. May not be used as part of a major or minor in home economics or homemaking education.

15. Clothing and Textiles (3) I, II

Six hours activity.

Commercial patterns and their adaptation; fitting and construction, primarily with cotton material. Selection and care of textiles. Wardrobe planning and buying practices. Good grooming.

19. Textiles (3) I, II

Two lectures and three hours of laboratory.

Fibers, yarn, fabric construction, and finishes as related to selection, use, and care.

35. Courtship and Marriage (3) I, II

(Same course as Social Welfare 35)

Emphasis on preparation for successful marital adjustment; presentation of materials to help students understand and meet their own courtship, marriage, and family problems. Not open to students with credit in Social Welfare 35, Sociology 35, or other course in courtship and marriage or marriage and the family.

40. Family Income Management (3) I, II
Financial problems involved in the effective management of the family resources.

45. Fundamentals of Housing and Design (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Art 2A.
Historical and contemporary interiors. Architectural, constructural, and artistic factors of housing as related to family needs.

70. Principles of Child Development and Guidance (3) I, II
Three lectures and one hour of observation.
Prerequisite: Psychology 1 and Sociology 1. Recommended: Zoology 22.
Growth and development of the child from conception through adolescence; his relationships with his family and peers; and implications for guidance.

UPPER DIVISION COURSES

100. Advanced Foods (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Home Economics 3 and Chemistry 2B.
Fundamentals and practices of scientific food preparation. Development of standards in food preparation, meal planning, and service.

101. Family Meals (3) I
Six hours activity.
Planning, preparing, and serving of attractive, well-balanced meals for different income levels and for various occasions. Not open to home economics majors.

102. Advanced Nutrition (3) I
Prerequisites: Home Economics 4A and Chemistry 2B.
Fundamental principles of human nutrition; planning, calculating and evaluating dietaries to meet human requirements; animal feeding experiments.

103. Quantity Cookery (3) I
One lecture and six hours of laboratory.
Prerequisites: Home Economics 100 and Business Administration 1A.
Application of basic principles to quantity foods, including experiences in planning, purchasing, storage, preparation, serving and cost accounting for institutional food service. Laboratory experience is provided in the campus cafeteria and in hospitals.

104. Institutional Food Organization and Management (3) II
Two lectures and three hours of laboratory.
Prerequisites: Home Economics 103.
Study of problems involved in the organization of food service units, problems of administration, cost of food service, specifications, operation and care of equipment for institutions, and routing of work. Special projects and field trips.

105. Experimental Foods (3) II
One lecture and six hours of laboratory.
Prerequisite: Home Economics 100.
Physical and chemical tests applied to problems in processing and preparation of food. Studies relate to protein foods; batters, doughs and sugar cookery; emulsions, fats and oils; and developments in food preservation.

106. Diet Therapy (3) I
Two lectures and three hours of laboratory.
Prerequisite: Home Economics 102.
Planning and preparation of special diets and food requirements in pathological conditions.

108. Advanced Institution and Restaurant Management (3) Irregular

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 103 and 104.

Purchasing food and selecting and maintaining equipment based on the needs of various types of food service and institutional layout.

115. Advanced Clothing (3) I, II

Six hours activity.

Prerequisite: Home Economics 15.

Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

116. Advanced Clothing Design (3) I

Six hours activity.

Prerequisite: Home Economics 115.

Principles of tailoring; planning and construction of coats and suits.

117. Clothing Selection (3) I

Three lectures.

Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

118. Flat Pattern Design (3) II

Six hours activity.

Prerequisites: Home Economics 115 and Art 6A.

Problems involving principles and techniques of flat pattern construction. Development of basic sloper for purpose of interpreting new designs. Investigation of sources of inspiration and their relationship to significant trend in design.

119. Textile Analysis and Testing (3) II

Six hours activity.

Prerequisites: Home Economics 15 and Chemistry 2B.

Analysis based on physical and chemical tests for quality differences due to variation in fibers, content, structure, and finishes and their suitability for specified uses.

120. Clothing and Human Behavior (3) II

Prerequisite: Consent of instructor.

Socio-economic influences on consumer clothing behavior patterns.

135. Family Interaction (3) I, II

Prerequisites: Psychology 1, and Home Economics 35.

Marriage adjustment and family interaction throughout the family life cycle.

136. Family Study (3) I, II

Prerequisite: Home Economics 35.

Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic groups. (Formerly Home Economics 135.)

140. Family Financial Problems and Practices (3) II

Prerequisite: Home Economics 40.

Financial problems and practices of families; decision-making with respect to market goods and services; consumer protection programs.

143. Household Equipment and Processes (3) II

Six hours activity.

Prerequisite: Physics 5 and Chemistry 2B.

Study and laboratory experience to acquaint students with current research findings in relation to equipment and household supplies. Emphasis placed upon characteristics and composition of household materials, use and care.

145. Family Housing (3) II

Two lectures and three hours of laboratory.

Prerequisite: Home Economics 45.

Advanced course in housing problems at various stages of the family life cycle and the different socio-economic levels.

150. Principles of Home Management (3) I, II

Open to both men and women, but not open to home economics majors.

Efficient management of the home, family cooperation, establishment of goals, and productive use of money, time, and energy. Not open to students with credit in Home Economics 151.

151. Home Management Theory and Analysis (3) I, II

Prerequisite: Home Economics 40.

Management process and its relationship to the use of resources based upon the decisions, values, goals, and standards of the family. Adaptation of work simplification techniques for use in studies of activities in homes and home economics classes.

152. Home Management Laboratory (3) I, II

Five weeks' residence in a family-size unit.

Prerequisites: Home Economics 40, 151, and written request made to department chairman one year prior to enrollment.

Application of theories and principles of all disciplines of home economics.

153. Supervised Field Work in Home Management (3) I, II

Prerequisites: Home Economics 3, 40, 135, 151, 171 and consent of instructor.

Management and social problems as they relate to the home and family. Supervised field work with various community agencies and selected families.

160. Merchandise Analysis (3) II

Three lectures.

Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

170. Human Development: Infancy (3) I

Two lectures and two hours of participation.

Prerequisite: Home Economics 70.

Physiological, psychological, social and cultural development and behavior of the human organism through age two. Infants are studied in the home, laboratory or in social agencies.

171. Human Development: Early Childhood (3) I, II

Two lectures and two hours of participation.

Prerequisite: Home Economics 70.

Development, behavior, and guidance of the preschool child, with special emphasis upon psychodynamics of family and group interaction. (Formerly numbered and entitled: Home Economics 170, Child Study Laboratory.)

175. The Nursery School Program (3) I

Prerequisite: Home Economics 70.

An analysis of the types of programs for the Nursery School with consideration of methods and materials evaluated in terms of child development.

176. Creative Experiences for Young Children (3) Irregular

Prerequisite: Home Economics 175.

Exploration of spontaneous creativity at the preschool age; evaluation of materials best suited for use in art, music, dance, and language for the young child.

177. Administration and Supervision in Nursery Schools (3) Irregular
Prerequisites: Home Economics 175 and 176 or teaching experience in a nursery school.

Problems of organization in conducting schools for young children; interrelationships of staff; personnel practices; communication with teaching staff, parents, and community; records and reports.

178. Methods and Materials in Parent Education (3) II
Prerequisite: Consent of instructor.

An investigation of philosophy, curriculum instruction, current trends, and issues in the teaching of child guidance to parents.

179. Advanced Child Study (3) I, II
Prerequisites: Psychology 1 and Home Economics 70.

Readings and interpretations of scientific literature which contribute to an understanding of child behavior. An advanced analysis of physical, social, and psychological factors which determine the direction of human development. (Formerly numbered 171.)

180. Food Demonstration Techniques (1) I, II
Two hours activity.

Prerequisite: Nine units in home economics courses.

Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations.

181. Materials and Techniques for Teaching Home Economics (2) II
Two hours activity.

Prerequisite: Education 121C or concurrent registration.

Development and use of audio-visual and other instructional materials.

190. Advanced Studies in Home Economics (2-6) Irregular
Prerequisite: Twelve upper division units in home economics.

Advanced study of selected topics. Maximum credit six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisite: Consent of the instructor.

GRADUATE COURSES

200. Seminar: Foods and Nutrition (3)
Prerequisites: Home Economics 100 and 102.

An intensive study of research and technological advances in the fields of foods and nutrition with emphasis on professional organizations and ethical procedures.

203. Advanced Readings in Food Technology (3)
Prerequisite: Home Economics 100.

Reading and analysis of selected research in food technology.

204. Advanced Readings in Nutrition (3)
Prerequisite: Home Economics 102.

Reading and analysis of selected research in nutrition.

205. Assay for Nutrients in Foodstuffs and Tissues (3)
Two lectures and three hours of laboratory.

Prerequisites: Home Economics 100 and 102.

Determinations of energy values, organic nutrients and minerals in foodstuffs and tissues by chemical, biological, and microbiological methods.

215. Seminar: Clothing and Textiles (3)
Prerequisites: Home Economics 119 and consent of instructor.

Investigation and report of specific problems in textiles and clothing. Controlled laboratory methods used. Individual research emphasized.

219. History of Textiles and Clothing (3)

Prerequisite: Six units in art, anthropology, sociology, or psychology.

Textile and clothing development from ancient times to the present as related to socio-economic and political influences.

231. Family Life Education (3)

Prerequisite: Three units in Family Relations.

Methods and materials in family life education for schools, colleges, churches, and social agencies.

234. Seminar: Marriage Adjustment (3)

Prerequisite: Home Economics 135.

Individual study, seminar reports, and group discussions of selected topics in marriage adjustment. (Formerly Home Economics 274).

240. Seminar in Family Economics (3)

Prerequisite: Upper division course in family finance.

Personal financial practices under changing conditions. Review of literature in family financial management.

251. Seminar in Home Management (3)

Prerequisites: Upper division course in home management and related areas.

Recent research in home management.

270. Seminar: Child Development and Guidance (3)

Prerequisite: Consent of instructor.

Emphasis on personality theories and on research and clinical findings relevant to a systematic study of human development and the guidance of children.

271. Readings in Human Development (3)

Prerequisites: Home Economics 70 and 179.

Analysis of selected research in human development.

281. Seminar: Home Economics Education (3)

Prerequisites: 18 units in home economics and consent of instructor.

The study and evaluation of home economics research and philosophical principles which have implications for the secondary homemaking teacher.

282. Current Developments in Home Economics Education (3)

Prerequisites: Education 121C or the equivalent, and 18 units in home economics.

Current issues and recent developments in home economics education with implications for secondary and post high school programs.

290. Bibliography and Methods of Research (3)

Prerequisite: Twelve upper division or graduate units in home economics.

Reference materials, bibliography, investigation of current research in home economics, processes of thesis topic selection, and techniques of scholarly writing.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

HUMANITIES

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in humanities are drawn from departments in the Division of the Humanities.

Offered by the Division

Minor in Classics

For a description of the following curricula, refer to the section in this catalog on Liberal Arts and Sciences.

Curriculum in American Studies.
Curriculum in Humanities.

These curricula are made available to students who wish to organize and correlate their course work beyond the minimum requirements for the liberal arts degree. The programs are made possible through a guided selection of courses within the major and minor fields and additional courses in related fields.

CLASSICS MINOR

The minor in classics consists of 18 to 22 units, to include 12 units in Greek or 12 units in Latin (including high school equivalents), plus at least nine upper division units chosen from the following: Greek 103, 104, 199; Latin 103, 104, 199; Art 153; History 111A, 111B; Philosophy 101; Comparative Literature 102A, 102B. (Only units earned while in college may be applied toward the minimum of 18 units.)

LOWER DIVISION COURSES

40. Mythology (3)

Major myths of the Western world in ancient and modern versions.

42. French Civilization (2) I

(Same course as French 40)
Conducted in English. No prerequisite.

The major currents and characteristics of French culture, as expressed through the centuries in literature, art, and philosophy.

43. French Civilization (2) II

(Same course as French 41)
Conducted in English. No prerequisite.
Continuation of Humanities 42.

44. German Civilization (2) I

Conducted in English. No prerequisite. Not open to majors or minors in German.

The major currents and characteristics of German culture, as expressed through the centuries in literature, art, and philosophy.

45. German Civilization (2) II

Conducted in English. No prerequisite. Not open to majors or minors in German.
Continuation of Humanities 44.

48-S. European Civilization (3) Summer

No prerequisite.

A study of the civilization of Europe through a conducted travel tour.

52. Russian Civilization (2) I

(Same course as Russian 40)
Conducted in English. No prerequisite.

The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

53. Russian Civilization (2) II
(Same course as Russian 41)
Conducted in English. No prerequisite.
Continuation of Humanities 52.

54. Italian Civilization (2) I
(Same course as Italian 40)
Conducted in English. No prerequisite.
The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

55. Italian Civilization (2) II
(Same course as Italian 41)
Conducted in English. No prerequisite.
Continuation of Humanities 54.

59A-59B. The Asian Heritage (3-3)
Prerequisite: Humanities 59A is prerequisite to 59B.
An interdisciplinary year course on the cultures of Southern, Southeastern, and Eastern Asia, with emphasis on the interaction of ideas, peoples and their environment.

66A-66B. Honors Colloquium (3-3)
Prerequisite: Sophomore standing and admission to the special advising program.
Interdisciplinary conference, with readings, discussion, reports.

UPPER DIVISION COURSES

138. Introduction to Aesthetic Appreciation (1) I
(Same course as Comparative Literature 138)
Conducted in English. No prerequisite.
Major forms of expressions and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

142. French Civilization (2) I
(Same course as French 140)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

143. French Civilization (2) II
(Same course as French 141)
Conducted in English. No prerequisite.
Continuation of Humanities 142.

148-S. European Civilization (3) Summer
A study of the civilization of Europe through a conducted travel tour.

150. The Cultural Heritage of Europe I (3) I
Bases and development of the common cultural heritage of Europe in its history, literature, philosophy, and the arts to the time of the French Revolution of 1789.

151. The Cultural Heritage of Europe II (3) II
The development of the common cultural heritage of Europe in its history, literature, philosophy, and the arts during the 19th and 20th centuries.

152. Russian Civilization (2) I
(Same course as Russian 140)
Conducted in English. No prerequisite.
An advanced course in Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

153. Russian Civilization (2) II

(Same course as Russian 141)

Conducted in English. No prerequisite.

Continuation of Humanities 152.

154. Italian Civilization (2) I

(Same course as Italian 140)

Conducted in English. No prerequisite.

An advanced course in the major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history with written reports on individual topics.

155. Italian Civilization (2) II

(Same course as Italian 141)

Conducted in English. No prerequisite.

Continuation of Humanities 154.

160. The Quest for European Unity (3)

Prerequisite: A year course in Western Civilization.

The movement for European unity: background, manifestations, and obstacles.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

170. The Humanities and Modern Man (1) Irregular

Lectures open to the public. May be repeated for a total of three units.

Weekly lectures on literature, language, philosophy, and cultural history. Reading and reports required of students enrolled for credit.

190. Conference on European Integration (1) Summer

Correlated lectures and discussions on various current aspects of European coordination, cooperation, and integration. May be repeated to a maximum of three units with different content.

198. Integration in the Humanities (3) I, II

The investigation of topics common to two or more departments, with oral and written reports. Required of all senior majors in divisional programs in humanities, and open to seniors with majors in English, foreign languages, history, and philosophy.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisites: A major within the Division of the Humanities, senior standing, and consent of the instructor.

INDUSTRIAL ARTS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus: Ford

Professors: Anderson, W.C. (Chairman), Irgang, Luce, McLoney, Thiel

Associate Professors: Aguirre, McMullen

Assistant Professors: Bailey, Hammer, Marsters, McEowen, Simons

Offered by the Department

Master of Arts degree for teaching service with a concentration in industrial arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in industrial arts with the A.B. degree in applied arts and sciences.

Minor in industrial arts.

Teaching major in industrial arts with specialization in secondary teaching.

Teaching minor in industrial arts with specialization in both elementary and secondary teachng.

INDUSTRIAL ARTS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Industrial Arts 11, to be taken at the beginning of the major; five courses selected from Industrial Arts 21, 31, 51, 61, 71, 81, and 85. (17 units.)

Major. A minimum of 24 upper division units to include nine units in **each of two** of the following fields: industrial drawing, general metalworking, general woodworking, electricity-electronics, transportation, or graphic arts; and six units selected from the areas just mentioned, or from industrial arts crafts, photography, or multiple activities in industrial arts.

INDUSTRIAL ARTS MINOR

The minor in industrial arts consists of 20 units in industrial arts to include Industrial Arts 11, 21, and one lower division and one upper division course in each of two of the following fields: drafting, general woodworking, general metalworking, electricity-electronics, transportation, and graphic arts. Electives should be chosen in consultation with the adviser.

INDUSTRIAL ARTS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Secondary Teaching

Requirements are the same as the requirements for the A.B. degree in applied arts and sciences as outlined above. In addition, students must complete, in their postgraduate year, two of the following courses, selected in the same two areas used for the nine-unit areas of concentration in the undergraduate major: Industrial Arts 202, 203, 205, 206, 207, 208.

INDUSTRIAL ARTS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

The minor in industrial arts for the standard teaching credential, with specialization in either elementary or secondary teaching, consists of 26 units to include Industrial Arts 11 and nine units selected from the following lower division courses: Industrial Arts 21, 31, 51, 61, 71, 81, and 85; and in the upper division, twelve units from the following two-course sequences: Industrial Arts 121 and 123, 131 and 133, 151 and 153, 161 and 163, 171 and 173, 181 and 183, 185 and 186, 101 and 102, 111 and 112.

Industrial Arts

LOWER DIVISION COURSES

5. General Industrial Arts Laboratory (3) I, II
One lecture and six hours of laboratory.

Open to all students. A general education elective course in the area of Personal and Social Development.

Practical utilization of tools and materials with emphasis on drafting, metalworking, and woodworking. Individual projects, field trips, and audio-visual materials.

6. General Industrial Arts Laboratory (3) I, II
One lecture and six hours of laboratory.

Open to all students. A general education elective course in the area of Personal and Social Development.

Practical utilization of tools and materials with emphasis on electricity-electronics. Individual projects and field trips.

11. Orientation to Industrial Arts (2) I, II
Required of all industrial arts majors during their first semester.

Introduction to the history and philosophy of industrial arts with emphasis on the current status and development of the secondary school curriculum. Discussion of professional requirements, obligations, and development.

15. General Plastics (3) I, II, S
One lecture and six hours of laboratory.

Production methods, mechanical and physical properties, composition of plastics. The basic processes: molding, casting, thermoforming, reinforcing, and foaming.

21. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.

Fundamental theories, procedures, and techniques of modern industrial drafting; study and practice intended to develop skill and judgment in application to drafting as the universal language of industry.

31. General Metalworking (3) I, II
One lecture and six hours of laboratory.

Exploration of basic materials and methods employed by industry to produce metal products. Emphasis on the attainment of knowledge and skills involved in the primary fabrication techniques of sheet metal, bench metal, art metal, foundry, forging, machine, and welding.

51. General Woodworking (3) I, II
One lecture and six hours of laboratory.

Theories, practices, and basic problems of working in wood; safety practices. Emphasis on the use of hand tools, the science of working with wood, and the techniques of student personnel management.

61. General Electricity-Electronics (3) I, II
One lecture and six hours of laboratory.

Planning, designing, constructing, and experimenting to develop skills and acquire knowledge in the electrical and electronic fields. Emphasis on basic principles, their application to modern electronic equipment, and correct use of common hand tools and simple test equipment.

71. General Transportation (3) I, II
One lecture and six hours of laboratory.

Introduction to the design, theory of operation, and repair procedures of various types of transportation equipment. Development of basic skills in the maintenance of equipment for land, sea, and air transportation.

81. General Graphic Arts (3) I, II
One lecture and six hours of laboratory.

Introduction to the theory and practice in planning, designing, and processing in the various graphic reproduction activities involving type, stencils, paper, and other allied materials.

85. Introduction to Photography (3) I, II
(Same course as Speech Arts 85)
One lecture and six hours of laboratory.
A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 50.

UPPER DIVISION COURSES

101. Industrial Arts Crafts (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Previous industrial arts experience.
Emphasis on skills in the industrial arts crafts by laboratory experiences in such areas as plastics, jewelry, lapidary, leather, and mosaics. Stress on creativity in design and in utilization of materials.

102. Advanced Industrial Arts Crafts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 101.
Advanced techniques of industrial arts crafts. Development of audio-visual aids, projects, and resource materials with emphasis on physical setting, organization, and other pertinent laboratory problems.

105. Workshop in Instructional Materials (3) Summer
One lecture and six hours of laboratory.
Industrial arts laboratory experiences adapted to the individual needs of experienced elementary and secondary school teachers; practice in use of tools common to problematic needs. Emphasis on preparation of materials and instructional aids for classroom use. Not open to industrial arts majors.

111. Comprehensive Industrial Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Previous industrial arts experience.
Principles, techniques, and procedures effective in meeting problems involved in a multiple activity program. Individual opportunity to explore each area of the selected industrial arts activities, utilizing a variety of tools, equipment, and materials.

112. Organization of Comprehensive Industrial Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 111.
Planning a multiple activities program; selection and organization of subject matter. Individual opportunity to develop skills and to cooperate in mass production studies.

115. Industrial Arts Plastics (3) I, II, S
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 15.
Production of plastic products. Design and use of basic tooling: dies for injection and compression molds, forms for lamination and reinforcement, and molds for thermoforming.

116. Intermediate Industrial Arts Plastics (3) I, II, S
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 115.
Techniques of tooling production and plastics processing; physical and mechanical properties of various plastics; selection of plastic materials.

117. Advanced Industrial Arts Plastics (3) I, II, S
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 116.
Composition of basic plastics and its relationship to processes; the structure of plastic resins, catalysis, and the effects of environment.

Industrial Arts

121. Intermediate Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 21.

Complex theories and techniques of graphic delineation. Activities selected to develop individual competence.

122. Advanced Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 21.

Architectural drafting, primarily in small home planning. Development of drafting skills and understanding of good contemporary home design.

123. Industrial Arts Drawing (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Industrial Arts 21.

Practice in and analysis of modern industrial drafting techniques and theories.

131. Intermediate Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 31.

Advanced study of metal fabrication with emphasis on the theory and operation of metalworking machines. Laboratory activities on a selective basis to provide for the development of individual competence.

132. Advanced Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 131.

Manufacturing processes, including material selection, production procedures, methods of assembly, and finishing. Emphasis on selection, distribution, and utilization of metal products.

133. Industrial Arts Metalworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 131.

Theory and practice in organization and management of industrial arts metalworking facilities, including material procurement, equipment selection, and maintenance.

151. Intermediate Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 51.

Experience in the use of selected woodworking machines which offer opportunities for the development of construction activities in wood. Emphasis on creative design, sound safety practices, and techniques of personnel management.

152. Advanced Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 151.

Designed to increase professional skills, craftsmanship, advanced technical skills, and equipment maintenance procedures.

153. Industrial Arts Woodworking (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 152.

Industrial arts woodworking resources and materials; experience in industrial arts planning, laboratory and equipment organization, and personnel management.

161. Intermediate Electricity-Electronics (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Industrial Arts 61.

Development of skills through planning, designing, constructing, and experimenting. Emphasis on advanced principles of electricity and electronics and their applications to the uses of power transmission, communication, radio, and television.

162. Advanced Electricity-Electronics (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 161.
Development of advanced skills with application to industrial electronics. Advanced techniques for using modern test equipment; analysis of electronic devices for instructional uses.

163. Industrial Arts Electricity-Electronics (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 162.
Advanced problems in circuit development and analysis, organization, and management.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

171. Intermediate Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 71.
Advanced study of the operating principles and maintenance procedures of selected types of transportation equipment. Emphasis on automotive engines, electrical systems, and automatic transmissions.

172. Advanced Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 71.
Theory and use of various types of diagnostic test equipment. Emphasis on automotive power accessories.

173. Industrial Arts Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 171.
Advanced techniques in testing and analysis of power units common to transportation and industry. Emphasis on organization and administration of industrial arts transportation facilities.

181. Intermediate Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 81.
Activities in the various graphic arts with emphasis on new technology in the industry.

182. Advanced Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 181.
Planning of activities and perfecting of skills in printing and publication; efficient operation of machines and equipment.

183. Industrial Arts Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 181.
Advanced techniques in developing skills involved in graphic arts facilities.

185. Photography for Teachers (3) I, II
One lecture and six hours of laboratory.
Designed for more mature students to learn photographic skills useful in teaching.

186. Advanced Photography (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 85.
A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques.

190. Experimental Industrial Arts (1 or 2) I, II
Prerequisite: Consent of instructor.
Individual laboratory work on complex projects on an experimental basis. May be repeated with consent of instructor.

193. Industrial Arts Organization and Management (2) I, II
Two lectures.
Study of the organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in personnel management.

194. Recent Trends in Industrial Arts Education (2) I, II
Two lectures.
Survey of current trends and practices in the field of industrial arts in secondary education. There will be opportunity for individual work on related problems of interest to members of the class.

198. Senior Project (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
Each student will work on a project in a selected industrial arts activity area. Oral progress reports will be made and a final written report is required.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3)
An intensive study in advanced industrial arts, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Advanced Teaching Problems (3)
Prerequisites: Teaching experience in area selected and consent of instructor.
Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) metalworking; (c) woodworking; (d) electricity-electronics; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive industrial arts. Stress on project design and visual materials. Maximum of six units applicable on a master's degree.

202. Industrial Arts Problems in Graphics and Design (3)
Prerequisite: Industrial Arts 123.
Detailed study of the theories and procedures of industrial drafting, including nomographs, descriptive geometry, and graphic solutions. Emphasis on special applications to industrial arts.

203. Industrial Arts Problems in Metalworking (3)
Prerequisite: Industrial Arts 133.
Advanced study of problems involved in industrial arts metalworking. Individual research project dealing with instructional materials or processes.

205. Industrial Arts Problems in Woodworking (3)
Prerequisite: Industrial Arts 153.
Intensive study in selected areas of the woodworking industry as it relates to materials, production, and construction. Presentation of research findings.

206. Industrial Arts Problems in Electricity-Electronics (3)
Prerequisite: Industrial Arts 163.
Intensive study of contemporary developments in the electricity and electronics areas. Development of projects, aids, and resource materials.

207. Industrial Arts Problems in Transportation (3)
Prerequisite: Industrial Arts 173.
Research in selected areas of the transportation industry and effective presentation of findings in oral and written form.

208. Industrial Arts Problems in Graphic Arts (3)
Prerequisite: Industrial Arts 183.
Intensive study in selected areas of the graphic arts industry related to materials, production methods, and allied pursuits. Techniques of presentation of findings in effective written and oral form.

220. History and Philosophy of Industrial Education (3)
A study of the philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.

221. Curriculum Construction in Industrial Arts Education (3)
Selection of teaching content for school situations in compliance with the best known procedures regarding analysis, objectives, methods, and learning, and development of instructional devices related directly to course content.

222. Instructional Resources for Industrial Arts Education (3)
Survey, selection, and compilation of materials used in the development of resource units for instruction in industrial education, involving publications, organized talks, field trips, visual materials, technical literature, and related materials. Organization and evaluation of such materials.

223. Evaluation in Industrial Arts Education (3)
Consideration of the purposes, principles, methods, and criteria of evaluation as applied to industrial education, with emphasis on the special problems of measuring growth, achievement, and performance in various phases of educational effort.

267. Field Work in Industrial Arts (3)
Prerequisites: Teaching experience in industrial arts and consent of instructor.
Application of the principles of laboratory organization, management, and planning in reference to the objectives of industrial arts in development of school programs. Maximum of six units applicable on a master's degree.

290. Bibliography (1)
Exercise in the use of basic reference books, professional literature, and specialized bibliographies, preparatory to the writing of a master's thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ITALIAN

IN THE DIVISION OF THE HUMANITIES

Faculty
Assistant Professor: Vergani
Lecturer: Mracek

Italian

Offered by the Department of French and Italian

Minor in Italian.

Teaching minor in Italian with specialization in both elementary and secondary teaching.

ITALIAN MINOR

The minor in Italian consists of from 15 to 22 units in Italian, six units of which must be in upper division courses.

ITALIAN MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in Italian for elementary teaching consists of not less than 20 units in Italian, six units of which must be in upper division courses.

Proficiency Examination: Before taking a student teaching assignment in the language, the candidate for the credential must pass an oral examination in the language administered by the Department of French and Italian. The candidate must consult with the chairman of the Department of French and Italian for permission to take this examination.

Specialization in Secondary Teaching

The minor in Italian for secondary teaching consists of not less than 20 units in Italian, exclusive of course equivalents, to include in the lower division, Italian 1, 2, 3, 4, 10, and 11 or equivalents; and in the upper division, Italian 101A, 101B, 102A, 102B, and 122.

Proficiency Examinations: Before taking a student teaching assignment in the language (Education 180C, 180D), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of French and Italian, in the language and its area civilization. (Italian 40-41 and 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of French and Italian for permission to take these examinations.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Italian may be counted as the equivalent of Italian 1; three years the equivalent of Italian 2; and four years the equivalent of Italian 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Italian culture and civilization, minimum essentials of grammar.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Italian 1.

Continuation of Italian 1.

3. Intermediate (4) I

Prerequisite: Italian 2.

A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4) II
Prerequisite: Italian 3.
Continuation of Italian 3. Reading of selections from Italian literature.

10. Conversation (2) I
Prerequisite: Italian 2 or three years of high school Italian.
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: Italian 10 or Italian 3, or four years of high school Italian.
Continuation of Italian 10.

40. Italian Civilization (2) I
(Same course as Humanities 54)
Conducted in English. No prerequisite.
The major aspects of Italian civilization with particular emphasis upon literature, art, philosophy, music, and history.

41. Italian Civilization (2) II
(Same course as Humanities 55)
Conducted in English. No prerequisite.
Continuation of Italian 40.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisite: Italian 4 and 11, with a grade of C or better.
Translation into Italian from moderately difficult English prose. Outside reading of modern Italian prose, with monthly written reports in Italian. Readings and oral discussions in Italian on various facets of Italian life and culture.

102A-102B. Survey Course in Italian Literature (3-3)
Prerequisite: Italian 4 with a grade of C or better.
A study of important movements, authors, and works in Italian literature from the Middle Ages to the present.

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Spanish, or Russian 122.

140. Italian Civilization (2) I
(Same course as Humanities 154)
Conducted in English. No prerequisite.
An advanced course in the major aspects of Italian civilization with particular emphasis on literature, art, philosophy, music, and history with written reports on individual topics.

141. Italian Civilization (2) II
(Same course as Humanities 155)
Conducted in English. No prerequisite.
Continuation of Italian 140.

166. Honors Course (Credit to be arranged) I, II
Refer to Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Italian available in any given semester.
Prerequisite: Consent of staff.

JAPANESE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in Japanese are drawn from departments in the Division of Humanities.

Offered by the Division of Humanities

Courses in Japanese.
Major or minor work in Japanese is not offered.

LOWER DIVISION COURSES

1. Elementary (4)

Four lectures and one hour of laboratory.

Pronounciation, oral practice, readings on Japanese culture and civilization, minimum essentials of grammar.

2. Elementary (4)

Four lectures and one hour of laboratory.

Prerequisite: Japanese 1.

Continuation of Japanese 1.

3. Intermediate (4)

Prerequisite: Japanese 2.

A practical application of the fundamental principles of grammar. Reading in Japanese of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4)

Prerequisite: Japanese 3.

Continuation of Japanese 3. Reading of selections from Japanese literature.

JOURNALISM

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Julian (Chairman), Wimer
Assistant Professors: Buckalew, Holowach, Odendahl, Sorensen

Offered by the Department

Major in journalism with the A.B. degree in liberal arts and sciences.
Minor in journalism.
Teaching minor in journalism with specialization in secondary teaching.

JOURNALISM MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management, and in speech arts (broadcasting emphasis) for those interested in radio and television news. Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

Preparation for the major. Journalism 50, 51A, and 51B. (9 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, 151, and one year's enrollment in 192 (or 92) or in 124, or the equivalent in professional experience.

JOURNALISM MINOR

The minor in journalism consists of from 15 to 22 units in journalism to include Journalism 49, 51A, 51B, 102, and 151.

JOURNALISM MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The minor in journalism for secondary teaching consists of not less than 20 units to include in the lower division, Journalism 51A, 51B; and in the upper division, Journalism 102, 151 and 192. Additional journalism electives must be taken to complete the minimum of 20 units. Among the electives recommended but not required, are Journalism 49, 152, and 193. Students selecting this minor must have an academic major.

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I, II

A survey of the work of mass media, their interrelationships, and the services they perform for society; common problems and responsibilities of the mass media; training and background needed in different media.

50. News and Feature Photography (3) I, II

Two lectures and three hours of laboratory.

An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures. Not open to students with credit in Industrial Arts 85.

51A. News Reporting (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Sophomore standing and ability to type.

Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories.

51B. Advanced News Reporting (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Grade of C or better in Journalism 51A.

Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec.*

92. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units. A maximum of three units of Journalism 92, or its equivalent, may be counted in the total required for graduation.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec.*

93. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II

Practice in gathering material and writing articles for specialized areas, with emphasis on the business press. Production of eight articles and marketing of at least one article required.

102. Law of Mass Communications (3) II
Study of libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Magazine Editing (3) II
Study in mechanics of the editorial process in magazines, with emphasis on industrial and business publications; selection and preparation of editorial material; picture selection, cropping, captioning; graphic producton processes; layout; preparation of dummies; special purpose booklets and magazines.

104. Radio and Television News (3) I, II
(Same course as Speech Arts 187)
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events.

105. Editorial Writing (3) I
Training in the principles and policies of editorial composition for mass communications media.

107. Technical Writing (3) II
Reporting technical developments in nontechnical language. A course in writing and editing primarily for nonmajors in journalism.

117. History of Mass Communications (3) I
American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

118. The Foreign Press (3) I
The four theories of the press. Flow of international news. Analysis of the foreign media. Problems of propaganda, governmental control, language, and economic support.

121. Current Problems in Mass Communications (3) I, II
Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

122. Public Opinion Measurement (3) I
(Same course as Psychology 122)
The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124. Radio News Production (3) I, II
Prerequisite: Journalism 104 or Speech Arts 187.
Radio news production with experience in writing, editing national wire copy and local copy, preparing tapes and on-the-spot recordings of news events for programs produced over the campus radio station and local commercial radio stations. May be repeated to a maximum of six units.

125. Television News Production (3) I, II
Prerequisite: Journalism 104 or Speech Arts 187.
Television news production with experience in photographing news events, processing and editing film, and writing copy to film for programs produced over the campus and local commercial television stations. May be repeated to a maximum of six units.

144. Reporting of Public Affairs (3) II
Prerequisites: Journalism 51A and 51B.
Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

150. Advanced News and Feature Photography (3) II
Two lectures and three hours of laboratory.
Prerequisite: Journalism 50.
Techniques for achieving the technical and story-telling quality in photojournalism.

151. News Editing (3) I
Three lectures and two additional hours of laboratory.
Prerequisites: Journalism 51A and 51B.
Editing copy, writing headlines, making up pages, handling telegraph copy.

152. High School Journalism (3) II
Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

153. Newspaper Advertising (3) I
Principles of advertising for newspapers and trade papers. Emphasis on copywriting, layout, typography, and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales problems and promotions.

154. Newspaper Advertising Practice (1-2) I, II
Prerequisite: Journalism 153.
Practical work in servicing accounts in advertising department of *The Daily Aztec*. Supervised work in preparation of newspaper copy and layout. Copy-testing methods emphasized. May be repeated for a total of four units.

155. Advanced Editing Techniques (3) I
Prerequisite: Journalism 151.
Principles of typography, page layouts, and use of pictorial material; selection evaluation, editing, and display of news.

166. Honors Course (Credit to be arranged) I, II
Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

177. Research Methods in Mass Communications (3) II
Investigative tools and methods of mass media; content analysis, readership studies, audience measurement, experimental designs, and representative studies.

180. Public Relations (3) I, II
Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

182. Publications Workshop (3) Summer
Individual problems in high school publication problems. May be repeated for a maximum of six units.

183. Problems in Public Relations (3) II
Prerequisite: Journalism 180.
Current public relations problems of industry, public agencies, and other institutions.

191. Internship in Journalism (1-6) I, II
Prerequisites: Journalism 51A, 51B, and consent of instructor.
Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. May be repeated to a maximum of six units with no more than three units in any one semester.

192. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec.*

193. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

197. Investigation and Report (3) I, II

Development of articles of substance and depth in specialized fields. Research, analysis, and interpretation of complex issues in the news. May be repeated to a maximum of six units.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

LATIN

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in Latin are drawn from departments in the Division of Humanities.

Offered by the Division of the Humanities

Courses in Latin.

Major or minor work in Latin is not offered. A minor in Classics, described in this section of the catalog under Humanities, is offered.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Latin may be counted as the equivalent of Latin 1; three years the equivalent of Latin 2; and four years the equivalent of Latin 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I

Four lectures and one hour of laboratory.

Study of the language and Roman culture, with reading of selected prose passages.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Latin 1 or two years of high school Latin.

Continuation of Latin 1.

3. Intermediate (4) I
Prerequisite: Latin 2 or three years of high school Latin.
A practical application of the fundamental principles of grammar. Reading of selected passages emphasizing the contribution of the ancient culture to our own.

53. Latin Prose Composition (2)
Prerequisite: Latin 3 or the equivalent.
Writing of simple prose; study of forms, syntax, and vocabulary.

UPPER DIVISION COURSES

103. Vergil (3)
Prerequisite: Latin 3.
Selections from the works of Vergil.

104. The Augustan Age (3)
Prerequisite: Latin 3 or equivalent.
Selections from the writers of the Age of Augustus, such as Horace and Livy.

105. Roman Satire (3)
Prerequisite: Latin 103 or 104.
Selected reading of such satirists as Martial and Juvenal.

106. Roman Comedy (3)
Prerequisite: Latin 103 or 104.
Plautus and Terence.

107. Epistles and Essays (3)
Prerequisite: Latin 3 or the equivalent.
Selected works of Cicero, Pliny, or Seneca.

108. Lucretius (3)
Prerequisite: Latin 103 or 104.

153. Advanced Latin Prose Composition (2)
Prerequisite: Latin 53.
Writing of prose.

199. Special Study (1-6) I, II
Individual Study. Six units maximum credit.
Prerequisite: Consent of instructor.

LIBRARY SCIENCE

IN THE SCHOOL OF EDUCATION

Faculty

Assistant Professors: Linn, McAllister

Offered by the School of Education

Minor in library science.

Program for the school librarian. (Described in the section on the School of Education.)

LIBRARY SCIENCE MINOR

The minor in library science is offered by the School of Education. The minor consists of from 15 to 22 units in library science, six units of which must be in upper division courses.

LOWER DIVISION COURSES

1. Use of the Library (1) I, II
Introduction to use of the library. Includes classification, card catalog, periodical indexes, selected reference books, and preparation of bibliographies.

UPPER DIVISION COURSES

110. Bibliography and Reference Materials (3) I, II
Prerequisite: Library Science 1.
A comprehensive course dealing with reference books, bibliographies, and source materials, with emphasis upon their use in research. A course of general interest and utility.

118. Selection and Acquisition of Library Materials (3) I
Study of all types of book and nonbook materials, including sources of information, selection, and evaluation. Attention is given to book and film reviews, standard lists, trade publications and bibliographies, publishers' and producers' announcements.

119. Technical Processes (3) I
Theory and methods of organizing library materials; a study of classification, cataloging, and choice of subject headings.

136. School Library Administration (3) I
Objectives, standards, and activities involved in operating the school materials program. Planning, organizing, administering, and coordinating the school library with the instructional program of the school.

138. Organizing and Processing of Curriculum and Special Materials (3) II
Prerequisite: Library Science 119.
Methods of purchasing, processing, classifying, cataloging and servicing special curriculum and audio-visual materials.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

184. History of Books and Libraries (3) II
The historical development of the book and of the library from the earliest times to the present day; examines their influence upon our schools and culture. Open to all upper division students.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

GRADUATE COURSES

225. Bibliography of the Humanities (2)
Prerequisite: Library Science 110.
Survey and evaluation of bibliographical and reference materials in the humanities, with training and practice in their use in solving questions arising in reference service.

226. Bibliography of the Social Sciences (2)
Prerequisite: Library Science 110.
Survey and evaluation of bibliographical and reference materials in the subject fields of the social sciences, with study of typical problems arising in reference service in these subjects.

227. Bibliography of the Sciences (2)
Prerequisite: Library Science 110.
Survey and evaluation of representative reference sources in the pure and applied sciences. Study of typical problems encountered in providing and servicing scientific reference materials.

231. Literature for Children (3)
Prerequisite: Library Science 118.
Survey and evaluation of literature and other library materials particularly suited to the use of the elementary school student. A critical study of standard, classic, and current boks for children, together with aids and criteria for selection.

232. Literature for Adolescents (3)
Prerequisite: Library Science 118.

Survey and evaluation of literature and other library materials particularly suited to the use of the high school student. A critical study of standard, classic, and current books for the adolescent, together with aids and criteria for selection.

MATHEMATICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus: Clark, H., Emerson

Professors: Becker, Branstetter, Burton, Deaton, Eagle, Harris, V., Harvey, Holmes, Riggs, Saltz, Shaw, Smith, N. B., Van de Wetering, Warren, L., Willerding

Associate Professors: Bray, Bryant, Drobnies, Fountain, Garrison, B., Gindler, Lopez, Moser, Nower, Romano

Assistant Professors: Accomando, Bulman, Davies, Froderberg, Ho, Howard, E., Jones, D. T., Kopp, Lang, Marcus, Morez, Osborne, Osteyee, Rivera, Ryan, Smith, J. B.

Lecturers: Kennedy, E., Marosz

Offered by the Department

Master of Arts or Master of Science degree in mathematics; and a Master of Arts degree for teaching service with a concentration in mathematics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in mathematics with the A.B. degree in liberal arts and sciences.

Major in mathematics with the A.B. degree in applied arts and sciences.

Minor in mathematics.

Teaching major in mathematics with specialization in secondary teaching.

Teaching minor in mathematics with specialization in both elementary and secondary teaching.

MATHEMATICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Preparation for the major. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-18 units.) Recommended: Physics 4A-4B-4C.

Major. A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

MATHEMATICS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

Major. A minimum of 24 upper division units which should be approved by the adviser before starting upper division work. This must include Mathematics 121A and 150A, and may include six units of approved related area courses.

MATHEMATICS MINOR

The minor in mathematics consists of from 15 to 22 units in mathematics, six units of which must be in upper division courses. Courses should be selected in consultation with the adviser in mathematics.

MATHEMATICS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in either liberal arts and sciences or applied arts and sciences.

Specialization in Secondary Teaching

Preparation for the major. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-16 units.) Recommended: Physics 4A-4B-4C.

Teaching Major (Undergraduate). A minimum of 24 upper division units in mathematics to include Mathematics 101, 104, 150A, a geometry course and a statistics course. Mathematics 121A is recommended.

Postgraduate Year. Six upper division or graduate units acceptable toward the credential, to be selected with approval of the departmental adviser.

MATHEMATICS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in mathematics for elementary teaching consists of not less than 20 units in mathematics, six units of which must be in upper division courses.

Specialization in Secondary Teaching

The minor in mathematics for secondary teaching consists of not less than 21 units, exclusive of course equivalents to include in the lower division, Mathematics 40, or qualifying by examination, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Engineering 20A, Physics 4A or 2A; and in the upper division, nine units (12 units if major is a non-academic major) in mathematics to include Mathematics 104 and six units of mathematics electives.

MATHEMATICS PLACEMENT EXAMINATIONS

All students who expect to enroll in Mathematics 3, 4, 12, 20, 21, 40, or 50 and have not completed prerequisite courses at San Diego State College must take the mathematics placement tests. These tests may be used to satisfy all or part of the prerequisite requirements for these courses and they also serve as a basis for the selection of students for the mathematics honors program. The schedule for these examinations will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

3. Intermediate Algebra (3) I, II

Prerequisite: One year of elementary algebra.

Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions. Not open to students with credit in Mathematics 20 or higher-numbered courses.

4. Trigonometry (2) I, II

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 3 at this college or qualification on Mathematics Placement Examination. Mathematics 4 may be taken concurrently with either Mathematics 40 or 50.

Basic concepts of analytic trigonometry.

7. Introduction to Computer Programing (1) I, II

Three hours of laboratory.

Prerequisite: Mathematics 3.

The use of problem-oriented language and peripheral equipment. Programming of problems and operation of the computer.

8. Theory and Use of the Slide Rule (1)

Practice in performing the fundamental operations of the slide rule.

10A-10B. Structure and Concepts of Elementary Mathematics (3) I, II

Open only to students working toward a teaching credential in elementary education.

Prerequisites: High school algebra and geometry. Mathematics 10A is prerequisite to 10B.

Numbers used in elementary mathematics, elementary number theory and congruences, extension of the number system to irrational numbers, nonmetric and metric geometry, and an introduction to logic.

12. Elementary Statistics (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Not open to students with credit for, or concurrent enrollment in another statistics course.

18. Introduction to Mathematics (3) I, II

Prerequisites: Two years of high school mathematics.

Topics from logic, modern algebra, and analysis designed to give the student an introduction to the structure of mathematical theories and their applications.

20. Mathematics for Business Analysis (3) I, II

Prerequisite: Mathematics 3 at this college or qualification on Mathematics Placement Examination.

Basic mathematics for business students, including topics from finite mathematics and calculus.

21. Mathematical Analysis (3) I, II

Prerequisites: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Concepts and applications of algebra, analytic geometry and the polynomial calculus, with emphasis on graphical methods. Designed for students who do not intend to prepare for a professional career in one of the physical sciences or in engineering. Not open to students with credit in Mathematics 50.

22. Mathematical Analysis (3) I, II

Prerequisite: Mathematics 21.

A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. Not open to students with credit in Mathematics 51.

23. Mathematical Analysis (3)

Prerequisite: Mathematics 22.

Infinite series, partial differentiation, multiple integrals. For the non-major. (Not open to students with credit in Mathematics 52.)

37. Intermediate Computer Programing (3) I, II

Prerequisite: Mathematics 7.

Further use of problem-oriented language. Machine organization. Introduction to general concepts of machine and machine-oriented language. Additional topics.

40. College Algebra (3) I, II
Prerequisite: Mathematics 3 at this college or qualification on the Mathematics Placement Examination.

Functional notation, mathematical induction, complex numbers, De Moivre's theorem, inequalities, binomial theorem, determinants, etc. Not open to students with credit in Mathematics 50.

50. Analytic Geometry and Calculus (5) I, II
Prerequisites: Mathematics 40 at this college with grade of C or better, and credit or concurrent registration in Mathematics 4; or qualification on Mathematics Placement Examination.

Topics in analytic geometry, differentiation and integration of algebraic functions.

51. Differential and Integral Calculus (4) I, II
Prerequisite: Mathematics 50 with grade of C or better.

Differentiation and integration of the elementary transcendental functions; applications.

52. Differential and Integral Calculus (4) I, II
Prerequisite: Mathematics 51 with grade of C or better.

Infinite series, partial differentiation, differential equations, multiple integrals, applications.

60. Introduction to Modern Mathematical Concepts (3) II
Prerequisite: Mathematics 40 or 21.

Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programing and theory of games.

UPPER DIVISION COURSES

101. Mathematical Concepts for Secondary School Teachers (3) I, II
Prerequisite: Mathematics 50.

An examination of the concepts of secondary school mathematics from the teacher's point of view.

104. History of Mathematics (3) I, II
Prerequisite: Mathematics 21 or 40.

History of mathematics down to early modern times.

105. Introduction to the Foundations of Geometry (3) II
Prerequisite: Mathematics 51 or 22.

The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

106. Projective Geometry (3) I
Prerequisites: Mathematics 51 or 22 and consent of instructor.

Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections.

108. Differential Geometry (3)
Prerequisite: Mathematics 52.

Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian curvature.

110A-110B. Modern Elementary Mathematics (3-3)
Prerequisite: Mathematics 10B. 110A is prerequisite to 110B.

Integers, rationals, and real numbers as mathematical systems; operations, mappings, properties of relations; coordinate geometry; mensuration. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

118A-118B. Advanced Mathematics for Engineering Students (3) I, II
Prerequisites: Mathematics 52. 118A is prerequisite to 118B.
Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations.

119. Differential Equations (3) I, II
Prerequisite: Mathematics 52.
Ordinary differential equations with applications to geometry, physics, and chemistry.

121A. Advanced Calculus I (3)
Prerequisite: Mathematics 52.
The real number system, limits and other topics, with emphasis on functions of one variable.

121B. Advanced Calculus II (3)
Prerequisite: Mathematics 121A.
A continuation of Mathematics 121A with emphasis on functions of two or more variables.

124. Vector Analysis (3)
Prerequisite: Mathematics 52.
Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

130A. Statistical Methods (3) I
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 12 and Mathematics 22 or 40.
Sampling and sampling distributions; normal distributions; F, T, Chi-square tests; confidence limits; analysis of variations.

130B. Statistical Methods (3) II
Prerequisite: Mathematics 130A.
Correlation, regression, analysis of convariance, nonparametric techniques, sensitivity experiments, design of experiments.

134. Probability (3)
Prerequisite: Mathematics 52 or 23.
Definitions, computation of probability by enumeration of the cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions.

135A. Numerical Analysis and Computation (3) I
Prerequisite: Mathematics 52 or 23.
Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

135B. Numerical Analysis and Computation (3) II
Prerequisites: Mathematics 119 or 118A and 135A.
Solution of systems of linear equations. Application of numerical methods to the solution of partial differential equations and of integral equations.

137. Combinatorial Principles for Digital Computers (3)
Prerequisite: Mathematics 52 or 23.
Boolean algebra, logical design, and applied combinatorial analysis.

140A. Mathematical Statistics (3) I
Prerequisite: Mathematics 52 or 23.
Graphical and arithmetical characterization of observed frequency distributions, moments, use of normal curve, curve fitting, correlation, etc.

140B. Mathematical Statistics (3) II
Prerequisite: Mathematics 140A.
Theoretical discrete and continuous distributions, multiple and partial correlation, large and small sample theory including student's T, Chi-square, and the F distributions with applications.

149. Linear Algebra (3) I, II
Prerequisite: Mathematics 52 or 23.
A study of linear equations, Euclidean spaces, linear transformations, matrices, determinants, and eigenvalues.

150A-150B. Modern Algebra (3) I, II
Prerequisites: Mathematics 52; 150A is prerequisite to 150B.
Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

152. Number Theory (3)
Prerequisite: Mathematics 51.
Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

155. Mathematical Logic (3)
Prerequisite: Mathematics 51 or 60, or Philosophy 20.
The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications. Not open to students with credit in Philosophy 121.

156. Logical Foundations of Mathematics (3)
Prerequisite: Mathematics 52 or 155.
The axiomatic method. Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics: logicism, intuitionalism, formalism.

160. Introduction to Topology (3)
Prerequisite: Mathematics 121A.
Topological spaces. Functions, mappings, and homeomorphisms. Connectivity, compactness. Metric spaces.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Partial Differential Equations (3)
Prerequisite: Mathematics 119.
A study of initial and boundary value problems using separation of variables methodology.

175. Functions of a Complex Variable (3)
Prerequisite: Mathematics 52.
Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

196. Advanced Topics in Mathematics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSES

X-100. Mathematical Topics for School Teachers (2 or 3)
Open only to persons currently employed as elementary or secondary school teachers.

A study of selected portions of elementary or secondary school mathematics. May be repeated with new subject matter for additional credit. May not be used in a mathematics major or minor.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study in advanced mathematics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

202. Geometrical Systems (3)

Prerequisites: Mathematics 150A and an upper division course in geometry.

Ordered and affine geometries, decompositions, dilations. Projectivities and projective space. Absolute geometry, isometries, groups generated by inversions.

204A-204B. Topics in Analysis (3-3)

Prerequisites: Mathematics 121A and 150A. 204A is prerequisite to 204B.

Topics in analysis, including the real number system, convergence, continuity, differentiation, the Riemann-Stieltjes integral, complex analysis, designed to give the secondary teacher a broad understanding of the fundamental concepts.

205. Advanced Mathematical Logic (3)

Prerequisite: Mathematics 150A or 155.

First-order theories, completeness theorems, arithmetization, Gödel's incompleteness theorem.

212. Advanced Ordinary Differential Equations (3)

Prerequisite: Mathematics 119 and 121A.

Existence and uniqueness theorems, Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.

214. Advanced Partial Differential Equations (3)

Prerequisite: Mathematics 170.

Theory and application of the solution of boundary value problems in the partial differential equations of engineering and physics by various methods; orthogonal functions, the Laplace transformation, other transformation methods, Green's functions.

220A-220B. Topology (3-3)

Prerequisite: Mathematics 160. Mathematics 220A is prerequisite to 220B.

Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan Curve Theorem.

222A-222B. Functional Analysis (3-3)

Prerequisites: Mathematics 149 and 160. Mathematics 222A is prerequisite to 222B.

Banach spaces, Hilbert spaces, spectral theory and Banach algebras.

224A-224B. Functions of a Complex Variable (3-3)

Prerequisites: Mathematics 121B and 175. 224A is prerequisite to 224B.

Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

226A-226B. Functions of a Real Variable (3-3)

Prerequisite: Mathematics 121B. Mathematics 226A is prerequisite to 226B.

Point sets, functions and limits, continuity, differentiation. Riemann and Lebesgue integration.

230. Rings and Ideals (3)

Prerequisite: Mathematics 150B.

A development of the theory of rings.

231. Theory of Groups (3)

Prerequisite: Mathematics 150B.

A development of the theory of groups.

232. Theory of Fields (3)
Prerequisite: Mathematics 150B.
A study of both finite and infinite fields, and field extensions.

233. Linear Algebra and Matrix Theory (3)
Prerequisite: Mathematics 149.
A study of matrices, determinants, and vector spaces.

240A-240B. Advanced Mathematical Statistics (3-3)
Prerequisites: Mathematics 140B and 121A. 240A is prerequisite to 240B.
Theory of common distribution functions, derivation of sampling distributions with emphasis on normal populations, estimation of maximum likelihood, ratio tests of parametric hypotheses, general linear hypothesis theory.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

297. Research (1-6)
Prerequisite: Six units of graduate level mathematics.
Research in one of the fields of mathematics. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPECIAL COURSES FOR NATIONAL SCIENCE FOUNDATION INSTITUTE

The following courses are open only to participants in the National Science Foundation Institute, except with consent of instructor.

Lower Division Course

54. Calculus Review (2)
Review of the fundamentals of elementary calculus.

Upper Division Courses

180S. Recent Trends in Secondary School Mathematics (1)
Recent trends in high school mathematics and in application of mathematics.

181A. Selected Topics of Secondary School Mathematics (3)
Selected concepts of secondary school mathematics; recommended modern presentation of these concepts; relation of these concepts to more advanced college mathematics.

183S. Modern Algebra (3)
Topics of modern algebra with emphasis on their implications for high school mathematics and with attention to aspects of algebra currently becoming more important.

185S. Modern Geometry (3)
Topics of modern geometry with emphasis on their implications for high school mathematics. Postulational systems, Euclidean and Non-Euclidean geometrics, projective geometry, topology.

187A-187B. Probability and Statistics for Secondary School Teachers (3-3)
Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications.

MICROBIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professors: Moore, H., Myers, Walch

Associate Professor: Baxter (Chairman)

Assistant Professors: Kelly, Phelps

Offered by the Department

Master of Arts or Master of Science degree in biology with an emphasis in microbiology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in microbiology with the A.B. degree in liberal arts and sciences.

Major in microbiology with the B.S. degree in applied arts and sciences.

Major in Environmental Health with the B.S. degree in applied arts and sciences.

Curriculum in Medical Technology.

Minor in Microbiology.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

MICROBIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. To satisfy the requirement in foreign language, it is strongly recommended that students select French, German, or Russian.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 or 40; and Physics 2A-2B (34 units.) Recommended: Chemistry 13; Mathematics 22 or 50; Physics 3A-3B.

Major. A minimum of 24 upper division units in microbiology and approved related fields, to include Microbiology 101, 102, 104, 107; Chemistry 115A-115B. Remaining units to be selected from: Microbiology 103, 105, 106 or Biology 101, Microbiology 108; Biology 103, 110, 151, 155; Chemistry 109A, 109B.

MICROBIOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 11 or 12; Mathematics 21 or 40; and Physics 2A-2B (34 units.) Recommended: French or German; Chemistry 13; Mathematics 22 or 50; Physics 3A-3B.

Major. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 101, 102, 103, 104, 105, 107, 109; Zoology 128; Chemistry 115A-115B; and electives selected with approval of the adviser. Recommended: Biology 103, 110, 151, 155; Chemistry 109A-109B; Microbiology 106 or Biology 101 and Microbiology 108.

MEDICAL TECHNOLOGY CURRICULUM

IN APPLIED ARTS AND SCIENCES

The curriculum in medical technology, which prepares for the licensed profession of Public Health Microbiologist or Clinical Laboratory Technologist or Bioanalyst, may be obtained by taking the microbiology major with the B.S. degree, but following a modified arrangement of courses. A description of the curriculum follows:

MEDICAL TECHNOLOGY CURRICULUM

Public Health Microbiologist. To fulfill the academic requirements to qualify for the licensing examination given by the California State Department of Public Health for Public Health Microbiologist, the student should follow the major in microbiology described for the B.S. degree, but should include from the following courses sufficient units to complete his major; Biology 103, 110, 155; Microbiology 106, 108; or Zoology 108, 126.

Clinical Technologist or Bioanalyst. To fulfill the academic requirements to qualify for the licensing examination given by the State either for Clinical Technologist or Bioanalyst, the student should include Microbiology 106 or Biology 101, in addition to the major in microbiology described for the B.S. degree, except that he should substitute Chemistry 114A-114B for Chemistry 115A-115B, and he may choose from the following courses sufficient units to complete the major: Biology 103, 110, 151, 155; Microbiology 108; and Zoology 108, 126.

ENVIRONMENTAL HEALTH MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1 and 2; Chemistry 1A-1B, 4 or 5, and 11 or 12; Physics 2A-2B, 3A-3B; Mathematics 21 and 22, or 40 and 50; Biology 15; Geology 2; Health Education 65; and Sociology 1. (48-52 units.)

Major. A minimum of 36 units to include Microbiology 101, 102, 111A-111B, 112, 113; Zoology 128 or Biology 150; Health Education 160; Political Science 160; Engineering 123, 125.

MICROBIOLOGY MINOR

The minor in microbiology consists of from 15 to 22 units in microbiology to include Microbiology 1 (or 101), 102, 103, and the remainder of the units to be chosen from Microbiology 104, 105, 106, 107, 108, and 199. Recommended courses to supplement the minor: Zoology 8, Biology 9 or 101, Chemistry 115A, 115B, or equivalents.

BIOLOGICAL SCIENCES MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

LOWER DIVISION COURSES

1. General Microbiology (Bacteriology) (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 2A. Students with credit for Microbiology 110 may enroll but will receive only one additional unit of credit.

An introduction to microbiology. Effects of physical and chemical agents upon bacteria; biochemical activities of bacteria; microscopic examination and cultivation of microorganisms; the bacteria of air, water, soil, milk, and dairy products, other foods; industrial applications. Introduction to disease-producing microorganisms.

UPPER DIVISION COURSES

101. General Microbiology (Bacteriology) (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1A.
Students with credit in Microbiology 110 may enroll but will receive only one additional unit of credit.
Same general areas covered as in Microbiology 1, but on more intensive upper division level.

102. Pathogenic Bacteriology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 101. Recommended: Chemistry 12 and one semester of biochemistry.
Agents of disease and methods of host resistance. Laboratory experience in diagnosis of bacterial pathogens and antibiotic sensitivity. Concepts of virulence and pathogenecity; consideration of host-parasite relationships.

103. Fundamentals of Immunology and Serology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 101 and 102.
Antigen-antibody reactions, the immunochemistry of protein and nonprotein cell substances, immunohematology, and theoretical and pathologic aspects of hypersensitivity. Laboratory diagnosis by use of serological techniques.

104. Medical Mycology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Microbiology 101. Recommended: Microbiology 102.
A study of the mycotic agents of disease and methods of systematic identification of such agents. Concept of epidemiology, diagnosis, pathology, and host-responses are considered.

105. Microbial Physiology (2) I, II
Prerequisites: Microbiology 101 and Chemistry 12. Recommended: Chemistry 114A or 115A.
Physiology of selected bacteria, fungi, and other microorganisms.

106. Microbial Physiology Laboratory (2) I, II
Six hours of laboratory.
Prerequisites: Credit or concurrent registration in Microbiology 105.
Physiology of selected bacteria, fungi, and other microorganisms.

107. Virology (2) II
Two lectures.
Prerequisite: Microbiology 102.
An introduction to viruses, their structure, function, culture, and methods of study.

108. Virology Laboratory (2) II
Six hours of laboratory.
Prerequisite: Credit or concurrent registration in Microbiology 107.
The culture, isolation, and characterization of viruses.

109. Hematology (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Microbiology 101 and Chemistry 12.
The study of normal and pathological blood with chemical, physical and microscopic methods.

110. Microbiology and Man (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Biology 1.
The biology of microorganisms and their significance in disease, agriculture, sanitation and industry; laboratory exercises designed to complement lecture material. Not open to majors in the biological sciences.

111A-111B. Epidemiology (2-2)
Two lectures.
Prerequisite: Microbiology 102.
Study of the transmission, distribution, and control of infectious and non-infectious diseases in the community.

112. Survey of Environmental Health (4) I
Three lectures and three hours of laboratory and field work.
Prerequisites: Biology 1, 2, and 15; Chemistry 1A-1B, 4 or 5, and 12; Physics 2A-2B, 3A-3B; Geology 2; Health Education 65; and Microbiology 101.
General principles of environmental sanitation, including the relationship of the various aspects of physical environment to preventive medicine; the provision of clean air and water, proper waste disposal, safe food supply, and adequate habitation.

113. Laboratory and Field Work in Environmental Health (4) II
Twelve hours of laboratory and field work.
Prerequisites: Microbiology 102, Health Education 160, and credit or concurrent registration in Engineering 125.
Procedures for evaluating the microbiological standards of the environment of a community, in such factors as water, food, air, sewage, rodents and flies.

114. Bacterial and Viral Genetics (4)
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 103, 106, 107, 108; Chemistry 114B or 115B; Biology 155.
The genetics of bacteriophages, selected animal viruses and bacteria.

115. Advanced General Microbiology (4)
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 101; Chemistry 114B or 115B; and either Microbiology 105 and 106, Biology 101, or Botany 130.
Taxonomy, comparative physiology and ecology of representative microorganisms found in various natural environments.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

180. Electron Microscopy (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Physics 2A-2B, Chemistry 12 and Microbiology 101. Recommended: Biology 103, Microbiology 107, and Zoology 108.
Principles and techniques in the biological application of the electron microscope.

190. Investigation and Report in Microbiology (2) I, II
Prerequisites: Microbiology 101 and at least one additional upper division course in microbiology.
Investigation and reports on current microbiological literature.

198. Methods of Investigation (2) I, II
One discussion and three hours of laboratory.
Prerequisites: Microbiology 101 and one other upper division course in the biological sciences.
Selection and design of individual investigation in microbiology; oral and written reports. Four units maximum credit for Microbiology 198 or a combination of this course wth Biology 198 or Zoology 198.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 upper division units in the major with an average of B (3.0) or better.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study in advanced microbiology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Seminar in Medical Bacteriology (2)

Prerequisite: Microbiology 102 or consent of instructor.

May be repeated with new content to a maximum of four units.

220. Seminar in Industrial and Agricultural Microbiology (2)

Prerequisite: Microbiology 101 or consent of instructor.

May be repeated with new content to a maximum of four units.

230. Seminar in Medical Mycology (2)

Prerequisite: Microbiology 104 or consent of instructor.

May be repeated with new content to a maximum of four units.

240. Seminar in General Microbiology (2)

Prerequisites: Microbiology 101 and 105, or consent of instructor.

May be repeated with new content to a maximum of four units.

250. Seminar in Virology (2)

Prerequisite: Microbiology 107 or consent of instructor.

May be repeated with new content to a maximum of four units.

260. Seminar in Immunology and Serology (2)

Prerequisite: Microbiology 103 or consent of instructor.

May be repeated with new content to a maximum of four units.

270. Biology of Animal Pathogenic Fungi (4)

Three lectures and three hours of laboratory.

Prerequisites: Microbiology 103, 104, and 105; Botany 102; and Chemistry 115B. Biology 110 and 155 recommended.

Physiological, cytological, genetical, and ecological factors relating to pathogenesis of the fungi-causing diseases in man and other animals.

271. Bacterial Viruses (Bacteriophages) (4)

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 105, 107, Biology 155; Chemistry 115B.

Effects of temperate and virulent bacteriophages on their hosts, including host-induced modification, lysogenic conversion, and transduction.

272. Advanced Pathogenic Bacteriology (4)

Three lectures and three hours of laboratory.

Prerequisites: Microbiology 102 and 105; Chemistry 114B or 115B. Recommended: Biology 101 and 110.

Biological and chemical nature of disease-producing bacteria. Application of experimental information to diagnostic laboratory procedures.

291. Research Techniques (3)

Prerequisites: Major in a biological science and two upper division courses in the area of microbiology or consent of instructor.

Analysis of research procedures in microbiology.

297. Research (1-6)

Research in one of the fields of microbiology.

Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

MUSIC

IN THE DIVISION OF THE FINE ARTS

(The Department of Music is a member of National Association of Schools of Music)

Faculty

Emeritus: Smith, L. D., Springston

Professor: Anderson, P., Blyth, Genzlinger, Rost, Smith, J. D. (Chairman), Snider

Associate Professors: Forman, Hogg, Hurd, Lambert, Savage, Sheldon, Smith, D. F., Ward-Steinman

Assistant Professors: Bruderer, Brunsen, Estes, Flye, Hill, H., Loomis, Mitchell, D., Mracek, Rohfleisch, M.

Offered by the Department

Master of Arts degree with a major in music; and a Master of Arts degree for teaching service with a concentration in music. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in music with the A.B. degree in applied arts and sciences.

Minor in music

Teaching major in music with specialization in secondary teaching. Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences, allowing a concentration in music, are also offered. (See the section of this catalog on the School of Education.)

Teaching minor in music with specialization in both elementary and secondary teaching.

MUSIC MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

MUSIC CURRICULA

Several plans of study are available with varying degrees of emphasis on performance, history and literature, creative activity, and teaching.

The music curricula are designed to fulfill the needs of all students: (1) those who have professional ambitions in music performance, or seek a foundation for graduate study leading to college or university teaching, (2) those who are preparing for one of the several state teaching credentials with music as either a major or minor, (3) those whose major professional interest is in another department, and are seeking musical study as a minor, and (4) those who are interested in music as an elective study area for the enrichment of their cultural background.

General Basic Requirements

General basic requirements for the A.B. degree with a major in music in applied arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class or private piano study for credit.

2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability through class or individual study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with the major in applied arts and sciences, or for seven semesters for students in the teaching credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

Course Requirements

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 52, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument. (26-30 units.)

Major. Thirty-two to 34 upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; Music 106; and the requirements in one of the following fields of emphasis:

(a) Performance. Five units from Music 153, 154ABCDE, 167, 197, 199.

Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the compositions to be performed before the music faculty preceding the recitals.

(b) Music History and Literature. Seven units from Music 154ABCDE, 197, 199.

During his senior year, the student emphasizing music history and literature is required to organize, prepare program notes, and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

(c) Composition. Seven units from Music 105, 109B, 197, 199.

An interview with the Department Chairman is required for admission to this emphasis. Students electing the emphasis will take Music 7 in the spring term of the freshman and sophomore years and Music 107 in the spring term of the junior year in lieu of private study in composition.

The student emphasizing creative activity and composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the music faculty one month in advance of the performance.

Foreign Language Requirement. Twelve units in one foreign language chosen from French, German, or Italian, or equivalent knowledge demonstrated in a test of reading knowledge administered by the foreign languages department concerned in consultation with the Music Department. (Exception: Voice students must substitute four units each of French, German, and Italian, or the equivalent, in lieu of 12 units in one foreign language.)

OUTLINE OF SPECIFIC REQUIREMENTS

First Year	*Units*
Music 9A-9B	6
†Music 10A-10B	0–2
Music organization courses numbered 70-88	4
Major instrument	2
Health Education 21	2
Psychology 1	3
English 1A	3
Speech Arts 3 (or 4)	2
Lit., philos., and the arts	3
Foreign language	4
P.E. activities	1
	30–32

Second Year	*Units*
Music 52	2
†Music 10C-10D	0–2
Music 59A-59B	6
Music organization courses numbered 70-88	4
Major instrument	2
American institutions	6
Foreign language	4
Natural science	3
P.E. activities	1
	28-30

Third Year	*Units*
Music 108	2
Music 146A-146B	2
Music 152A-152B	6
Major instrument	2
Music organization courses numbered 170-188	4
Natural science	6
Social science	3
Foreign language	4
Lit., philos., and the arts	3
	32

Fourth Year	*Units*
Music 109A	2
Music 106	3
Major instrument	2
Music organization courses numbered 170-188	4
Units from one of the fields of emphasis listed below	5–7
(a) Performance: Five units from Music 153, 154ABCDE, 167, 197 199.	
(b) Music History and Literature: Seven units from Music 154ABCDE, 197, 199.	
(c) Composition: Seven units from Music 105, 109B, 197, 199.	
‡Electives	14–16
	30–34

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† May be waived in part or in full by examination.

‡ In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.

MUSIC MINOR

The general basic requirements for the minor in music are as follows:

(1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted.

(2) Proficiency in piano equivalent to Music 10ABCD.

Coursework in the minor consists of 21 units in music to include the following: In the lower division, Music 9A, 9B, 52, and 59A; in the upper division, Music 151, three units selected from courses numbered 170–188, and four units from Music 150.

MUSIC MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Students in Teacher Education may use this major, with specialization in secondary teaching, for the A.B. degree in applied arts and sciences by completing additional departmental requirements in recital attendance and performance, and proficiency examinations in voice and piano.

Specialization in Secondary Teaching

Preparation for the major. Music 9A, 9B, 59A, 59B; 10-A-B-C-D, 15A, 15B, 52; eight units selected from courses numbered 70 through 88; four units selected from courses numbered 20 through 35; and four units in the major instrument. (36 units.)

Teaching Major (Undergraduate). Thirty units to include Music 108, 109A; three units selected from courses numbered 120 through 135; Music 146A, 146B, 152A, 152B; six units selected from courses numbered 170 through 188; three units in the major instrument; four units of upper division music electives; and Ed 125.

Proficiency Examination. In addition to the major, the credential candidate must pass a departmental proficiency examination in piano and voice, to include the following:

(a) Piano: Specific requirements may be obtained in the Music Department Office.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

Postgraduate Year. Confer with departmental counselor.

MUSIC MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The teaching minor in music for elementary teaching is restricted to students admitted to and continuing in the credential program for elementary teachers. The teaching minor consists of not less than 20 units to include the following courses: Music 2, 10A-B-C, 15A, 15B, 143, 144, 145, 146A, and two units of music organization courses numbered 170-188.

Specialization in Secondary Teaching

The teaching minor in music for secondary teaching requires demonstration of vocal or instrumental performing ability by placement audition before admission to the minor program may be granted.

Coursework in the minor consists of 25 units to include the following: In the lower division, Music 9A-9B, 10A-10B-10C, 15A-15B, and 52; in the upper division, Music 146A-146B, four units in the major instrument, three units of music organization courses 170-188, and 3-6 units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135. Music 10A-B-C may be waived in part or in full by examination, units waived to be used in courses 120A through 135.

ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188. Some students will be musically prepared to elect courses which may or may not be included in this group. Enrollment by qualified students who wish to elect these courses is encouraged.

CREDIT FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS

Credit may be allowed for private instruction in music under the following conditions:

1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 2, 9A, 51, or 151.
2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.

3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.

4. Prior to the start of private study in San Diego State College, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.

5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination.

6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.

7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

LOWER DIVISION COURSES

2. Basic Musicianship for Non-Music Majors (3) I, II

Four hours. No prerequisite.

Rudimentary music theory involving the elements of music: melody, rhythm, and harmony. Developing the understanding of these elements through instrumental and vocal experiences which include the use of unison and part-singing, the keyboard, and simple melodic and harmonic instruments. (Formerly Music 7A, Musicianship for Elementary Teachers.)

7. Composition Laboratory (1) II

Three hours of laboratory.

Prerequisite: Consent of instructor.

Original writing in different homophonic and polyphonic forms for various media. May be repeated to a maximum of two units.

8A-8B. Comprehensive Musicianship (6-6) I, II

Four lectures and four hours of activity.

Prerequisite: Music 8A is prerequisite to 8B.

Direct analysis of musical forms as they have evolved historically; sight-singing, keyboard harmony, dictation, part-writing and counterpoint and, where relevant, orchestration, aesthetics, art and architecture, literature, and cultural history.

9A. Elementary Harmony (3) I, II

Four hours.

Sight-singing, dictation, keyboard harmony; traditional diatonic harmony, part-writing, analysis.

9B. Intermediate Harmony (3) I, II

Four hours.

Prerequisite: Music 9A.

Continuation of Music 9A, with applied emphasis upon part-writing.

10A-10B. Piano—Elementary Class Instruction (1-1) I, II

Two hours.

Prerequisite: Music 10A is prerequisite to 10B.

Basic keyboard experience through study of music reading, notation, scales, chords, and sight-reading covering a repertoire of beginning and intermediate songs and piano literature, with emphasis on keyboard harmony. Required of music majors and minors and credential candidates for teaching at the kindergarten-primary level.

10C-10D. Piano—Elementary Class Instruction (1-1) I, II

Two hours.

Prerequisite: Music 10B is prerequisite to 10C; and 10C to 10D.

Continuation of Music 10A-10B.

15A. Voice—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
A class for beginners in the vocal field taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

15B. Voice—Elementary Class Instruction (1) I, II
Two hours.
Prerequisite: Music 15A.
Study of more advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

20A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 120A.

20B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 120B.

25A. Clarinet and Flute—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet and flute by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125A.

25B. Oboe and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125B.

30A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130A.

30B. Brass—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 30A or 130A.
Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130B.

35. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 135.

50. Applied Music—Individual Study (1) I, II

Ten one-hour lessons or 15 40-minute lessons.

For the teaching credential performance requirement or for the requirements of the major emphasis curricular leading to the A.B. degree with a major in music. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instructors in the section on the music major.

A. Piano
B. Organ
C. Voice
D. Flute
E. Oboe
F. Clarinet
G. Saxophone
H. Bassoon
J. French Horn
K. Trumpet
L. Trombone
M. Baritone Horn
N. Tuba
O. Percussion
P. Violin
Q. Viola
R. Cello
S. Contrabass
T. Harp
U. Classical Guitar
V. Composition

51. Introduction to Music (3) I

Three lectures. No prerequisite.

Practical approach to hearing music with understanding and pleasure, through study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors and minors.

52. Orientation in Music Literature (2) I, II

Two lectures. No prerequisite.

An introductory course in the elements of musical style, structure, and media of expression as found in representative musical literature. Lectures, text, and assigned study of phonograph recordings and musical scores.

53. Opera Technique (2) I, II

Four hours per week. No prerequisite.

Training in the interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

58A-58B. Comprehensive Musicianship (6-6) I, II

Four lectures and four hours of activity.

Prerequisite: Music 8B; Music 58A is prerequisite to 58B.

Continuation of Music 8A and 8B.

59A. Advanced Harmony (3) I, II

Four hours.

Prerequisite: Music 9B.

Continuation of Music 9B. Chromatic harmony, remote modulation, introduction to twentieth century techniques; analysis and writing.

59B. Eighteenth Century Counterpoint (3) I, II

Four hours.

Prerequisite: Music 59A.

Two- and three-voice counterpoint in the eighteenth century manner; compositional exercise in appropriate forms.

PERFORMANCE ORGANIZATION COURSES

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

70. Chamber Music (1) I, II
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

75. Marching Band (1) I
Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

76. Symphonic Band (1) I, II
Semester I: Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Semester II: Activity, five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

80. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

85. Concert Choir (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

86. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

87. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

88. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

89. Jazz Ensemble (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

UPPER DIVISION COURSES

105. Modern Harmonic Practice and Four-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59A.
Analysis and composition in modern idioms. Continuation of contrapuntal technique into four-voice technique, writing of canon and fugue.

106. Sixteenth Century Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59A.
Contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegeneri. Compositional exercises in setting parts of the Mass and in writing motets.

107. Composition Laboratory (1) II
Three hours of laboratory.
Prerequisites: Music 7 and consent of instructor.
Continuation of Music 7. May be repeated to a maximum of two units.

108. Form and Analysis (2) I, II
Two lectures.
Prerequisite: Music 59A.
Musical structure and design from traditional and modern literature; development of detailed analytical techniques.

109A-109B. Instrumentation and Arranging (2-2) I, II
Two lectures.
Prerequisite: Music 59A. Music 109A is prerequisite to 109B.
Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras.

120A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite:
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 20A.

120B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 20B.

123-S. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer
Prerequisite: Consent of instructor.
The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

125A. Clarinet and Flute—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet and flute by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25A.

125B. Oboe and Bassoon—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching oboe and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25B.

130A. Brass—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30A.

130B. Brass—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 30A or 130A.
Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30B.

135. Percussion—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 35.

140. Planning and Development of Marching Band Shows (2) I
Two hours.
Prerequisite: Two semesters of Music 75 or 175.
The organizing, charting, and producing of half-time shows for football games for prospective high school teachers. Shows are planned and produced by the students and performed by the Marching Band.

141. Piano Pedagogy (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Consent of instructor.
Teaching beginning and intermediate piano. Survey and evaluation of teaching materials. Observation of individual and group piano lessons.

142. Piano Pedagogy Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Music 141.
Practical experience in the teaching of individual and group piano lessons.

143. Music Literature for Elementary Teachers (3) I, II
Three lectures.
Prerequisites: Music 2 or 9A.
Study of music literature suitable for teaching at the elementary school level; includes background information and ways of classroom presentation.

144. Music of the People (3) I, II
Three hours.
Prerequisite: Music 2 or 9A.
The origin and development of folk music; the social instruments and their use. Participation in singing and playing folk music.

145. Music in Contemporary Life (3) I, II
Three hours.
Prerequisite: Music 2 or 9A.
Functional music in society to include its psychological, physical and recreational uses; music as communication; the composer, the musician, and the audience.

146A. Choral Conducting (1) I, II
Three hours.
Prerequisite: Junior standing.
Elements of baton technique and development of basic skills common to choral conducting. Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels.

146B. Instrumental Conducting (1) II
Three hours.
Prerequisite: Music 146A.
Study of orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

147. Perspectives in Music (3) I; II
Three lectures.
Prerequisites: Music 7A or 9A.
Musical understandings from non-performance aspects and perspectives regarding the relationships of music to the visual arts and the humanities.

150. Applied Music—Individual Study (1) I, II

For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instruction in the section on the music major.

A. Piano
B. Organ
C. Voice
D. Flute
E. Oboe
F. Clarinet
G. Saxophone
H. Bassoon
J. French Horn
K. Trumpet
L. Trombone
M. Baritone Horn
N. Tuba
O. Percussion
P. Violin
Q. Viola
R. Cello
S. Contrabass
T. Harp
U. Classical Guitar
V. Composition

151. Great Music (3) I, II

Three lectures.

Significant music literature of the various historical periods with emphasis on the stylistic characteristics through directed listening.

A. Musical Masterpieces of the 18th and 19th Centuries.
B. Musical Masterpieces of the 20th Century.
C. Masterpieces of Grand Opera.
D. Twentieth Century American Jazz.

152A-152B. History of Music (3-3) I, II

Three lectures.

Prerequisites: Music 52 and 59A; Music 152A is prerequisite to 152B.

Detailed study of the chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments.

153. Opera Technique (2) I, II

Four hours. No prerequisite.

Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

154. Music Literature (2) I, II

Two lectures.

Prerequisites: Music 52 and 59A.

A concentrated study of the literature in the several areas listed. Analysis by use of scores and of recordings, when available.

A. Chamber Music Literature—Strings
B. Small Wind and Percussion Ensemble Literature
C. Symphonic Literature
D. Keyboard Literature
E. Song Literature

166. Honors Course I, II (Credit to be arranged)

To be arranged after consultation with the chairman of the department. Refer to the Honors Program.

167. Junior Recital (1) I, II

Prerequisite: Junior standing in music.

Selection of literature for recital program not to exceed thirty minutes in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

197. Senior Recital (2) I, II
Prerequisite: Senior standing in music.
Selection of literature for recital program not to exceed one hour in length; theoretical analysis and historical study of scores chosen; preparation for public performance; and examination before committee of music department faculty.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the department chairman.

PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

170. Chamber Music (1) I, II
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

175. Marching Band (1) I
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

176. Symphonic Band (1) I, II
Semester I: Concurrent registration in 175 and 176 required. Combined activity, six hours.
Semester II: Five hours per week.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

180. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

185. Concert Choir (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

186. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

187. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

188. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

189. Jazz Ensemble (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

GRADUATE COURSES

200. Seminar in Music Education (3)
Prerequisite: Consent of instructor.

Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.

A. Supervision of music education
B. Junior high school music
C. Marching band technic
D. Instrumental methods
E. Choral methods
F. Problems in Elementary School Classroom Music

203. Musicology (3)
Prerequisites: Music 152A and 152B.

Problems and methods of research in aesthetics, acoustics, music history and related fields. Source materials, bibliography. Completion of written project.

207. Composition (2 to 3)
Prerequisite: Music 107.

Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a project.

208. Seminar: Music Theory (3)
Prerequisite: Music 108.

A survey of important theoretical approaches to music, from pre-Socratic writers to the present.

209. Advanced Orchestration (2) I, II
Prerequisite: Music 109B.

Intensive work in the practical scoring for ensembles, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

246A. Advanced Choral Conducting (2)
Prerequisite: Music 146B.

Course designed to develop skills at professional level; study of different styles of choral literature and their relationship to conductor's art; score analysis and experience in conducting.

246B. Advanced Instrumental Conducting (2)
Prerequisite: Music 146B.

Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature, score analysis and experience in conducting.

250. Applied Music—Advanced Individual Study (1)
For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. For conditions under which credit may be given for private instruction, see Credit for Music Study Under Private Instructors in the section on the music major.

A. Piano
B. Organ
C. Voice
D. Flute
E. Oboe
F. Clarinet
G. Saxophone
H. Bassoon
J. French Horn
K. Trumpet
L. Trombone
M. Baritone Horn
N. Tuba
O. Percussion
P. Violin
Q. Viola
R. Cello
S. Contrabass
T. Harp
U. Classical Guitar
V. Composition

252. Seminar in Music History (3)

Prerequisites: Music 152B and consent of instructor.

Seminars in music history are offered for intensive study in each of the historical eras listed below.

A. Music of the Middle Ages and Renaissance
B. Music of the Baroque Era
C. Music of the eighteenth and nineteenth centuries
D. Twentieth century music
E. American Music

255. Seminar: A Major Composer (3) I, II

Prerequisite: Music 152B. Completion of a seminar in Music 252 is recommended.

The life, milieu and works of a major composer, such as Bach, Mozart, or Schubert will be studied. May be repeated.

260. Seminars in the Notation of Polyphonic Music (3)

Prerequisites: Music 152B. Completion of Music 252A is recommended.

Problems related to the notation of Medieval, Renaissance and Baroque music. Examples will be transcribed into modern notation.

A. Notation of Soloistic Music: Scores and Tablatures.
B. Notation of Ensemble Music: White Mensural Notation.
C. Notation of Ensemble Music: Black Notation to the End of Franconian Notation.
D. Notation of Ensemble Music: French, Italian, Mixed and Mannered Notation.

290. Research Procedures in Music (3)

Three lectures.

Reference materials, bibliography, investigation of current research in music, processes of thesis topic selection, and techniques of scholarly writing.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

NURSING

IN THE DIVISION OF THE LIFE SCIENCES

(Agency Member of the National League for Nursing)

Faculty

Professors: Coveny, Moses, Nye, N. (Chairman)

Associate Professors: Atkinson, Coakley, Johnson, E., Lee, P.

Assistant Professors: Bailey, Conley, Firlit, Goodrich, Himes, Hunt, Laiho, Lamonica, Laws, Maire, Salerno, Schmidt

Lecturer: Stanley

Offered by the Department

Major in nursing with the B.S. degree in applied arts and sciences.

NURSING MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

The Department of Nursing is an agency member of the National League for Nursing. It is accredited by the California Board of Nursing Education and Nurse Registration and by the National League for Nursing.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Curriculum

The nursing curriculum consists of a four-year course of study leading to a B.S. degree in nursing. Graduates of the program are eligible to write the examination for licensure as a registered nurse.

The curriculum in nursing requires completion of a minimum of 128 semester units of work as prescribed. Opportunity for clinical laboratory practice is offered in hospitals and health agencies. During the first year only, all classes meet on the San Diego State campus.

Any student who is regularly admitted to the college may enter the nursing program. Students will normally enter the program in the freshman year, beginning with the fall semester. Students who enter with advanced standing credit from other colleges will be required to complete the remaining requirements in the nursing program for the degree.

Course Requirements

Preparation for the major. Nursing 1, 33A-33B, 34A-34B, and 36 (23 units); Chemistry 2A-2B, 3; Microbiology 1; Physics 5; Zoology 8; Biology 9; Sociology 1. (28 units.)

Pattern credit in general education will be allowed in Health Education 21 for completion of the entire nursing curriculum; and the lower division zoology may be counted in place of biology for general education purposes. Other general education credit will be allowed as appropriate courses are completed; the remaining three units to be selected from electives in social sciences or in communication.

Major. Forty-five units to include Nursing 112, 114, 116, 118, 120, 124, 125, 126 (33 units); and the following related courses: Anthropology 100B, Psychology 106, 131; and Sociology 136. (12 units.)

LOWER DIVISION COURSES

1. Orientation to Nursing (1) I

One lecture. No prerequisite.

An introduction and orientation to the profession of nursing. Considers ethical principles, the nurses' code, and professional problems which will face the student nurse.

33A. Medical Nursing (5) I

Three lectures and six hours of laboratory.

Prerequisites: Zoology 9, concurrent registration in Nursing 34A and in Microbiology 1 or Chemistry 3.

Fundamental principles and application in meeting needs of adults with medical health problems.

33B. Medical Nursing (5) II

Two lectures and nine hours of laboratory.

Prerequisites: Nursing 33A, 34A, and concurrent registration in Microbiology 1 or Chemistry 3.

Continuation of Nursing 33A.

34A. Surgical Nursing (5) I

Two lectures and nine hours of laboratory.

Prerequisites: Zoology 9, concurrent registration in Nursing 33A and in Microbiology 1 or Chemistry 3.

Fundamental principles and application in meeting needs of adults requiring surgical intervention.

34B. Surgical Nursing (5) II
Three lectures and six hours of laboratory.
Prerequisites: Nursing 33A, 34A, and concurrent registration in Nursing 33B and in Microbiology 1 or Chemistry 3.
Continuation of Nursing 34A.

36. Community Nursing (2) I, II
Prerequisite: Concurrent registration in Nursing 33A and 34A, or in 33B and 34B.
A study of social and health agencies and how the nursing needs of individuals and families in the hospital, home, and community are met.

UPPER DIVISION COURSES

112. Obstetric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and Sociology 136.
Study of care and treatment of the obstetric patient and newborn infant.

114. Pediatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and credit or concurrent registration in Psychology 106.
Nursing care of infants and children; prevention and control of disease; and instruction of parents.

116. Trends in Nursing (2) I
Prerequisite: Nursing 1.
Place of nursing in world history and the present social order.

118. Psychiatric Nursing (5) I, II
Two lectures and nine hours of laboratory.
Prerequisites: Nursing 33B and 34B and credit or concurrent registration in Psychology 131.
Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures.

120. Practicum in Clinical Nursing (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Nursing 112, 114, and 116.
Development of ability for making a nursing diagnosis, and taking appropriate action.

124. Leadership Roles in Nursing (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Nursing 116.
Professional and legal responsibilities of the nurse; selected practice activities in the role of team leader.

125. Public Health Nursing (4) I, II
Prerequisite: Nursing 36, 112, 114, and credit or concurrent registration in Nursing 126.
Principles of Public Health Nursing and organization and administration of health services.

126. Public Health Nursing Practice (5) I, II
Fifteen hours of laboratory.
Prerequisites: Concurrent registration in Nursing 125.
Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes.

Individual Study

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

175. Nursing in School Health Services (2) I, II
Prerequisites: Nursing 125, 126; concurrent registration in Nursing 176.
The philosophy of school health, the functions and responsibilities of the school nurse in planning, organizing and implementing a program of school health services.

176. Practicum in School Health Nursing Services (4) I, II
Twelve hours of laboratory.
Prerequisites: Nursing 125, 126; concurrent registration in Nursing 175.
Supervised field practice and experience in public school nursing.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

EXTENSION COURSE

X-160. School Nursing (3)
Prerequisite: Nursing 125, or equivalent to be determined by examination.
The application of health principles and current best practices in schools with emphasis on the functions of the school nurse related to the school, home, and community.

OCEANOGRAPHY

IN THE DIVISIONS OF THE LIFE SCIENCES AND THE PHYSICAL SCIENCES

Faculty

Associate Professor: McBlair

Assistant Professors: Darby, Ford

UPPER DIVISION COURSES

100. The Oceans (2) I
Prerequisites: One introductory college course in a life science and one in a physical science.
Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography.

For additional courses in Oceanography see
Biology 113. Biological Oceanography.
Physical Science 110. Physical Oceanography
Physical Science 170A-170B. Theoretical Oceanography

PHILOSOPHY

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus: Mendenhall

Professors: Nelson, Ruja, Sheilds

Associate Professors: Anderson, Crawford, P., Howard, McClurg, Snyder (Chairman), Warren, E., Weissman

Assistant Professors: Carella, Hirschbein, Jordan, Leonard, Praetorius, Troxell

Offered by the Department

Master of Arts degree with a major in philosophy. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in philosophy with the A.B. degree in liberal arts and sciences.

Minor in philosophy.

PHILOSOPHY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Preparation for the major. Nine lower division units in philosophy.

Major. A minimum of 24 upper division units in philosophy to include Philosophy 101, 102, and 103. Six of the 24 units may be in related fields to be selected with approval of the departmental adviser.

PHILOSOPHY MINOR

The minor in philosophy consists of from 15 to 22 units in philosophy, nine units of which must be in upper division courses, to include Philosophy 101.

LOWER DIVISION COURSES

1A-1B. Introduction to Philosophy (3-3) I, II

Prerequisite: Philosophy 1A, or consent of instructor, is prerequisite to 1B.

The place of philosophy in intelligent living. The methods, areas, and significance of philosophical inquiry. Each student is encouraged to think independently and formulate his own tentative conclusions. In Philosophy 1A, emphasis is placed upon problems of value. In Philosophy 1B, emphasis is placed on problems of knowledge and reality.

20. Logic (3) I, II

Introduction to deductive and inductive logic. Logic and language. Analysis of fallacies. Uses of logic in science and in daily life.

UPPER DIVISION COURSES

NOTE: At least three units of philosophy are prerequisite to all upper division courses in philosophy. Equivalents for the prerequisites stated may be accepted at the discretion of the instructor.

101. History of Philosophy I (3) I, II

Prerequisite: Six units of philosophy or the equivalent in other areas.

Thales through Marcus Aurelius.

102. History of Philosophy II (3) I, II

Prerequisite: Philosophy 101.

Plotinus through William of Occam.

103. History of Philosophy III (3) I, II

Prerequisite: Philosophy 101.

Nicholas of Cusa through Kant.

104. History of Philosophy IV (3) I

Prerequisite: Philosophy 103.

Fichte through Royce.

105A-105B. Twentieth Century Philosophy (3-3)

Prerequisite: Philosophy 1B.

Historical treatment of major philosophical issues, movements, and figures in American and European philosophy. First semester: emphasis on Great Britain and the United States; second semester: emphasis on continental Europe.

108. Recent Existentialism (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
An examination of the philosophical aspects of Existentialism. Major emphasis is on the diversity of thought within a common approach as this is shown in individual thinkers.

109. Ordinary Language Analysis (3) II
Prerequisite: Six units of philosophy.
The application of linguistic analysis to basic philosophical problems.

110. Philosophy of Law (3) I
Prerequisite: Philosophy 1A, 1B or 20, and three units of Political Science.
A systematic inquiry into the nature of law and the logic of legal reasoning. An exploration of certain key legal concepts such as causations, responsibility, personality, and property.

112. Political Philosophy (3) II
Prerequisite: Philosophy 1A.
A critical inquiry into selected aspects of the political structures within which we live, such as law, power, sovereignty, justice, liberty, welfare.

121. Deductive Logic (3) I
Prerequisites: Philosophy 20 or Mathematics 60.
Principles of inference for symbolic deductive systems; connectives, quantifiers, relations and sets. Interpretations of deductive systems in mathematics, science, and ordinary language. Not open to students with credit in Mathematics 155.

122. Inductive Logic (3) II
Prerequisite: Philosophy 20.
Definition, classification, and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

123. Theory of Knowledge (3) I
Prerequisite: Philosophy 1B.
A critical study of the major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (3) II
Prerequisite: Philosophy 1B.
Explorations of prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

127. Values and Social Science (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.
Analysis and discussion of the nature of values and value-judgment with particular reference to the social sciences. Among relevant issues: the naturalistic fallacy, facts and values; authoritarianism, emotivism, objective relativism; the individual and the community.

128. Theory of Ethics (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A study of significant and typical value theories and systems and of the concrete problems such theories seek to explain. The emphasis will be placed on moral values. The student will be encouraged to examine critically his own system of values.

129. Social Ethics (3)
Prerequisite: Philosophy 1A.
Ethical isues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships.

131. Philosophy of Language (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.
An introduction to theories of meaning for natural languages and formal systems; concepts of truth, synonymy and analyticity; related epistemological and ontological problems.

132. Philosophy of History (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A critical examination of the nature of history and historical inquiry. As metaphysics: a study of theories of historical development. As methodology: history as science, truth and fact in history, historical objectivity, the purpose of history.

134. Philosophy of Literature (3)
Prerequisite: Six units of philosophy or the equivalent in other areas.
Study of literature of philosophical significance, and of philosophical problems of literature. Representative works of rationalism, realism, romanticism, existentialism and other modern directions of thought are considered with regard to both their intellectual and literary principles.

135. Philosophy of Religion (3) I, II
Prerequisite: Six units of philosophy or the equivalent in other areas.
The philosophical significance of major themes in religious thought. The role of myth and the nature of religious language.

137. Philosophy of Science (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A critical examination of the basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

141. History of Aesthetics (3) I
Prerequisite: Philosophy 1A.
Major documents in the history of aesthetics.

142. Philosophy of Art (3) II
The nature of aesthetic experience. Principal contemporary theories of art in relation to actual artistic production and to the function of art in society. (Formerly Philosophy 136.)

150A-150B. Asian Thought (3-3)
Prerequisite: Six units of philosophy or the equivalent in other areas.
The religious and philosophical modes of thought and ways of life of the Orient. Reading and analysis of primary texts in translation. First semester: India and Southeast Asia. Second semester: China and Japan.

164. American Philosophy (3)
Prerequisite: Six units of philosophy or the equivalent in other areas.
A systematic and critical study of the work of American philosophers from the Puritans through the Pragmatists. Major emphasis is placed upon Pierce, James, Royce, Santayana, Dewey, and Whitehead.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 12 upper division units in philosophy and consent of instructor.

GRADUATE COURSES

201. Seminar in Ancient Philosophy (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 101.
Directed research in a major author (e.g., Plato or Aristotle), or a school (e.g., the Pythagoreans or the Stoics), or a problem (e.g., causation or the state). Maximum credit six units applicable on a master's degree.

202. Seminar in Medieval Philosophy (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 102.
Directed research in a major author (e.g., Augustine or Aquinas), or a school (e.g., neo-Aristotelianism), or a problem (e.g., political philosophy or reason and authority). Maximum credit six units applicable on a master's degree.

203. Seminar in Modern Philosophy (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 103.
Directed research in a major author (e.g., Hume or Kant), or a school (e.g., the continental rationalists or the British empiricists), or a problem (e.g., the nature of substance). Maximum credit six units applicable on a master's degree.

205. Seminar in Contemporary Philosophy (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 105.
Directed research in a major author (e.g., Dewey or Wittgenstein), or a school (e.g., the pragmatists or the language analysts), or a problem (e.g., perception or personhood). Maximum credit six units applicable on a master's degree.

211. Seminar in Legal Philosophy (3)
Prerequisite: 12 upper division units in philosophy.
Directed research in recurrent themes of philosophical significance in jurisprudential literature.

221. Deductive Logic (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 121.
A comparison of deductive systems in logic. Problems of definability, consistency, and completeness. The role of logic in the foundations of mathematics.

223. Seminar in Epistemology (3)
Prerequisite: 12 units of upper division work in philosophy.
An examination of some of the basic problems concerning meaning, perception, and knowledge. Readings in the works of leading contemporary philosophers, such as C. I. Lewis and Bertrand Russell.

225. Seminar in Metaphysics (3)
Prerequisite: 12 units of upper division work in philosophy.
An inquiry into the search for significant qualities of reality.

228. Seminar in Ethics (3)
Prerequisite: 12 units of upper division work in philosophy.
Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson, and Toulmin.

231. Semantics and Logical Theory (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 121 and 131.
Contemporary issues in the foundations of logic and theories of language.

235. Seminar in Philosophy of Religion (3)
Prerequisite: 12 upper division units in philosophy including Philosophy 135.
A philosophical investigation of the nature of religious thought: its structure, growth, and significance.

236. Seminar in Philosophy of Art (3)
Prerequisite: 12 units of upper division work in philosophy.
An analysis, criticism, and comparative study of selected philosophies of art.

237. Seminar in Philosophy of Science (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 122 and 137.
Studies in the methodology of the empirical sciences. The logical structure of science.

250. Seminar in East-West Philosophy (3)
Prerequisites: 12 upper division units in philosophy including Philosophy 150A.
Comparative study of mythological, ethical, and mystical themes in the literature of East and West.

298. Special Study (1-6)
Individual study. Maximum credit six units.
Prerequisites: 12 units of upper division work in philosophy and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Emeritus: Schwob, Shannon, Smith, C.

Men's Department

Professors: Benton, Coryell, Governali, Kasch, Scott, Terry, Ziegenfuss
Associate Professors: Broadbent, Burgess, Carter, Olsen, A., Olsen, L., Phillips, Schutte (Chairman)
Assistant Professors: Franz, Friedman, Gilbert, Hall, Sucec, Well, Zampese
Lecturer: Gutowski

Women's Department

Professor: Murphy, M. M.
Associate Professors: Andrus, Cave (Chairman), Lockman, Tollefsen
Assistant Professors: Barone, Cullen, Fox, Lewis, K., Sprunt, Wilhelm, Williamson, Willis

Offered by the Departments

Master of Arts degree for teaching service with a concentration in physical education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physical education with the A.B. degree in applied arts and sciences.

Minor in physical education.

Minor in dance.

Teaching major in physical education with specialization in secondary teaching.

Teaching minor in physical education with specialization in both elementary and secondary education.

PHYSICAL EDUCATION MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

Students majoring in physical education must complete a minor in another field.

Major for Men

Preparation for the major. Physical Education 8A, 9A, 10A, 12A, 29B, 52, 70, 71, 73; Zoology 8; and Biology 22. (16½ units.) Students may be excused from skill courses by passing a competency test.

Physical Education

Major. A minimum of 29 upper division units to include Physical Education 162, 164, 167, 168, 169, 172, 174, 175, 176, 177. Recreation 140, and four to six elective units to be selected from the P.E. 180 series. P.E. 151 or P.E. 179 may be substituted for one course of the P.E. 180 requirement.

Major for Women

Preparation for the major. Physical Education 33A, 33B, 34A, 34B, 52, 56A, 56B, one unit of physical education activity elective; Zoology 8; and Biology 22. (14 units.)

Major. Twenty-seven upper division units to include Physical Education 151 or 154, 155 or 156, 160, 167, 168, and 12 units from health education and/or physical education courses selected with approval of the department adviser.

Emphasis in Dance

Preparation for the major. Physical Education 48A, 48B, 54, 81, 82; one unit selected from Physical Education 33A, 33B, 34A, 34B; Zoology 8; and 16 units of art, music, and speech arts selected from Art 2A, 2B, 5, 50A, 50B, 61, Music 10A, 35, 51, Speech Arts 5, 8, 11A, 55A or 55B, and 63. (28 units.)

Major. A minimum of 24 upper division units to include three to four units from Physical Education 151 or 153A, 154, 157A, 178, 181, 182A, 182B, 183, and two units of upper division electives to be selected with the approval of the dance adviser. In addition to course requirements, the student must be a member of the Dance-Theatre Group and must participate in a minimum of four semesters of dance programs preferably in the junior and senior years. Substitution for such participation will require departmental approval.

PHYSICAL EDUCATION MINOR

The minor in physical education consists of from 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the adviser in physical education.

DANCE MINOR

The minor in dance consists of Physical Education 2A-2B, 3A-3B, 12A-12B, 81, 82; two units selected from Physical Education 153A or 178, 181, 182A, and 182B; and 3 upper division units to be selected from the areas of art, music, speech arts, and others, with the approval of the adviser in dance. (21 units.)

PHYSICAL EDUCATION MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in applied arts and sciences.

Specialization in Secondary Teaching

Major for Men

Requirements are the same as the requirements for the A.B. degree in applied arts and sciences as outlined above. In addition, students must complete, in their postgraduate year, a minimum of six units of 200-numbered courses approved by the department adviser.

Major for Women

Preparation for the major. Physical Education 7A, 7B, 16A, 17A, 18A, 20A, 29B, 32A, 33A, 33B, 34A, 34B, 52, 56A, 56B; Zoology 8 and 22. (17 units.)

Teaching Major (Undergraduate). Twenty-eight upper division units to include Physical Education 151, 152, 154, 155, 156, 160, 162, 167, 168, and 172.

Postgraduate Year. Six units of 200-numbered courses approved by the department adviser.

PHYSICAL EDUCATION MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

Minor for men. The minor in physical education (men) for elementary teaching consists of not less than 20 units to include, in the lower division, Physical Education 53, 71, 73, and four units to be selected from physical education or recreation; and, in the upper division, Physical Education 175, 177, Health Education 146, Recreation 140, and two units to be selected from physical education or recreation.

Minor for women. The minor in physical education (women) for elementary teaching consists of not less than 22 units to include, in the lower division, Physical Education 1A, 7A, 7B, 33A, 34A, 33B or 34B, 52, 56A, 56B, and one unit elective; and in the upper division 14 units to include Physical Education 151 or 154, 152, 156, 162, and Recreation 170.

Specialization in Secondary Teaching

Minor for men. The minor in physical education (men) for secondary teaching consists of a minimum of 24½ units to include, in the lower division, Physical Education 8A, 9A, 10A, 12A, 29B, 52, 71, and 73; and, in the upper division, Physical Education 174, 175, 176, 177, Recreation 140, Health Education 146, and two to three units to be selected from either Physical Education 180 series, field experiences in intramurals, or recreation, or Physical Education 151.

Minor for women. The minor in physical education (women) for secondary teaching consists of a minimum of 25 units to include, in the lower division, Physical Education 1A, 7A, 7B, 16A, 17A, 18A, 20A, 32A, 33A, 33B, 34A, 34B, 52, 56A, 56B; and in the upper division, 15 upper division units in physical education to include Physical Education 151 or 154, and 155 or 156.

REQUIRED ACTIVITY COURSES

To meet general education requirements, four semesters of activity courses are required. All freshman and sophomore students must enroll in an activity course each semester. Two units are needed for general education and graduation, but no more than one activity course in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of one taken during the fall or spring semester.

Exemptions or Postponements

Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the general education requirement in physical education. Students over 25 years of age may also be exempted from the general education requirement in physical education upon approval by the Dean of the College or duly authorized representative. Students carrying fewer than 12 units during any semester may apply to the chairman of the Physical Education Department for a postponement of the physical education activity requirement. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

Types of Activity Courses

A health history record is required of each student entering college. Adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An opportunity is afforded students to participate in competitive sports and intramural programs.

Courses

Courses offered for one-half unit credit meet two hours per week or equivalent. "A" signifies a beginning class, "B" intermediate or advanced.

1A-1B. Fundamental Skills (½-½) I, II

2A-2B. Conditioning (½-½) I, II

6A-6B. Team Sports (½-½) I, II

7A-7B. Gymnastics (½-½) I, II

8A-8B. Basketball (½-½) I, II

9A-9B. Soccer (½-½) I, II

10A-10B. Volleyball (½-½) I, II

11A-11B. Track and Field (½-½) I, II

12A-12B. Wrestling (½-½) I, II

16A-16B. Golf (½-½) I, II

17A-17B. Archery (½-½) I, II

18A-18B. Tennis (½-½) I, II

19A-19B. Bowling (½-½) I, II

20A-20B. Badminton (½-½) I, II

21A-21B. Handball (½-½) I, II

22A-22B. Fencing (½-½) I, II

23A-23B. Boxing (½-½) I, II

24A-24B. Water Craft (½-½) I, II

29A-29B. Swimming (½-½) I, II

32A-32B. Ballroom Dancing (½-½) I, II

33A-33B. Folk and Square Dancing (½-½) I, II

34A-34B. Modern Dance (½-½) I, II

36A-36B. Selected Activities (½-½) I, II
May be repeated with new activity for additional credit. See class schedule for semester offerings.

38. Individual Adaptives (½) I, II
Prerequisite: Consent of instructor.
Individual exercise programs for those who are handicapped in some respect, or who have functional defects, or deficiencies amenable to improvement through exercise. May be repeated for credit.

MEN AND WOMEN

PROFESSIONAL THEORY COURSES

LOWER DIVISION COURSES

48A-48B. Advanced Modern Dance (1-1) I, II
Four hours.
Prerequisites: Physical Education 34A and 34B.
Skill techniques. Compositional factors and devices. Materials of design, rhythm and dynamics in group compositions. The use of percussion and various forms of accompaniment. Discussions, lectures and practice.

50. Life Saving (1) I, II
Three hours per week.
Standard American Red Cross course in life saving and water safety, designed to qualify superior swimmers for Senior Life Saving Certificate.

52. Introduction to Physical Education (2) I, II

History and principles of physical education and sports. Study of the objectives of modern physical education with a view towards the development of a basic philosophy and background for professional education. Required of all physical education majors without previous credit in an introductory physical education course.

53. Physical Education of Children (2) I, II

One lecture and three hours of laboratory.

Application of the principles of motor learning and muscular fitness to the elementary physical education activity program.

54. Advanced Skill Techniques in Dance (1) I, II

Four hours of laboratory.

Prerequisite: Consent of instructor.

Progressively difficult dance techniques using several creative approaches. Emphasis on motivation, body design, rhythm, and dynamics.

56A-56B. Professional Activities: Team Sports (Women) (1-1) I, II

Four hours of laboratory.

Team sports for women approached through a study of competencies, skills, and knowledge needed for teaching.

57A-57B. Officiating Women's Sports (1-1) I, II

Three hours of laboratory.

Prerequisite: Physical Education 56B.

Practice in officiating techniques in women's sports leading to official's ratings: Fall—volleyball, basketball, and hockey; Spring—softball, track and field, badminton and tennis.

70. Orientation to Physical Education (Men) (1) I, II

Orientation and guidance of major students in physical education. Course must be taken during the first semester of enrollment in the major at San Diego State (transfer major students included).

71. Gymnastics (Men) (2) I, II

Six hours laboratory.

Competency development in gymnastics. Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in gymnastics.

73. Dance (Men) (2) I, II

Six hours laboratory.

Competency development in dance. Emphasis on skills, movements, facilities, and organizational procedures in dance.

81. Introduction to Dance (2) I

Dance as an art form with emphasis on the development of contemporary trends; American dance personalities and their contribution. Required of all physical education majors with an emphasis in dance.

82. Rhythmic Analysis Related to Movement (2) II

Music as related to movement; notation and simple music forms applied to all movement activities; percussion accompaniment; writing of percussion scores; music repertoire for dance.

UPPER DIVISION COURSES

122. Water Safety Instruction (1) II

Four hours of lecture and laboratory.

Prerequisites: P.E. 29B or equivalent, and current American Red Cross Senior Life Saving Certificate.

Methods and materials for teaching swimming. Course designed to qualify expert swimmers for American Red Cross Swimming Instructors Certificate.

151. Professional Preparation in Folk and Social Dancing (Men and Women) (3) I
Two lectures and three hours of laboratory.

Prerequisites: Physical Education 32A and 33B, or completion of folk and social dancing competencies tests.

Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques.

152. Professional Preparation in Gymnastics (Women) (3) I
Two lectures and three hours of laboratory.

Prerequisites: Physical Education 7A and 7B, or completion of competencies tests in gymnastics and related fields.

Advanced materials in tumbling and gymnastics with emphasis on safety devices, spotting, etc. Analysis of teaching techniques and progressions.

153A-153B. Problems in Dance (2-2)
Prerequisite: Physical Education 48A.

Problems in ethnic or modern dance: history, anthropological basis, stagecraft, accompaniment, costuming.

154. Professional Preparation in Modern Dance (Women) (3) II
Two lectures and three hours of laboratory.

Prerequisite: Physical Education 34B, or completion of competencies tests in modern dance.

Advanced skill techniques with emphasis on individual choreography. Selection of materials and course planning for the secondary schools. Class teaching experience. Brief survey of basic literature and current readings in the field.

155. Professional Preparation in Individual Sports (Women) (3) II
Two lectures and three hours of laboratory.

Prerequisites: Physical Education 16A, 17A, 18A, 20A, or completion of competencies tests in archery, badminton, golf, and tennis.

Review of individual playing techniques, knowledge, rules, and teaching methods in tennis, badminton, archery, and golf. Designed for senior majors in physical education who are expected to demonstrate a high degree of competency in the sports indicated.

156. Professional Preparation in Team Sports (Women) (3) I
Two lectures and three hours of laboratory.

Prerequisites: Physical Education 56A and 56B, or completion of competencies tests in basketball, hockey, soccer, speedball, softball and volleyball, and track and field.

Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women.

157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3)
Two lectures and three hours of laboratory.

Prerequisite: Consent of instructor.

Experimentation in dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors of choreography. Semester I: Production problems for large and small groups. Semester II: Production problems for trios, duos, and solos.

160. Mechanics of Body Movement (Women) (3) II
Two lectures and three hours of laboratory.

Prerequisite: Physical Education 167.

Efficient use of the body in daily living; evaluation and classification of exercises, study of methods and practice in planning and presenting material.

162. Measurement and Evaluation in Physical Education (3) I, II
Intensive study of existing skills, tests, and other forms of evaluation used in physical education programs, including practical measuring and comparisons with norms, standards, etc. Closely related to required competencies tests for physical education majors with applications to use in teaching.

164. Athletic Injuries (Sports Medicine) (2) I, II
One lecture and three hours of laboratory.
Prerequisite: Physical Education 167.
Prevention and care of athletic injuries. Environment and hazards of sports. First aid. Use of prescribed modalities.

166. Honors Course (Credit to be arranged) I, II
Refers to the Honors Program.

167. Applied Anatomy and Kinesiology (3) I, II
Prerequisites: Zoology 8 and 22.
Arthrology, syndesmology, and myology, with special emphasis on movement analysis. Muscle groups and their functional relationships. Application of simple mechanical principles to movement analysis.

168. Physiology of Exercise (3) I, II
Prerequisites: Zoology 8 and 22.
Effects of physical activities on the physiological functions of the body.

169. Adapted Activities (2) I, II
One lecture and three hours of laboratory.
Prerequisites: Zoology 8 and 22, Physical Education 167 and 168, and admission to Teacher Education.
Adaptation of programs for the atypical individual, including physical examinations, training, and prescribed exercises, follow-up, instructional problems, and evaluation.

172. Aquatics (2) I, II
Four hours.
Prerequisite: Physical Education 29B or demonstrated competency.
Emphasis on skills, movements, rules, officiating, facilities, and organizational procedures in aquatics.

174. Combatives (Men) (2) I, II
Four hours.
Prerequisite: Physical Education 12A or demonstrated competency.
Competency development in combatives. Review of skills, strategy, tactics, and emphasis on teaching and coaching procedures.

175. Team Sports (Men) (2) I, II
Four hours.
Prerequisites: Physical Education 8A, 9A, and 10A, or demonstrated competency.
Competency development in team sports. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in selected team sports.

176. Individual Sports (Men) (3) I, II
Seven hours.
Competency development in archery, badminton, golf, handball, and tennis. Emphasis on skills, strategy, tactics, rules, officiating, facilities, and organizational procedures in individual sports.

177. Physical Fitness (Men) (1) I, II
One lecture and two hours of laboratory.
Prerequisite: A conditioning course in the required program, or demonstrated competency.
Skills, movements, facilities, and organizational procedures in physical fitness programs. History and current role in the curricula.

178. Workshop in Physical Education (1-2)
Methods, techniques and development of skills in such areas as aquatics, combatives, gymnastics, rhythms and dance, and individual and team sports. Designed for secondary school administrators, teachers, coaches, recreation and youth leaders. May be repeated for a total of six units. May not be used as part of the physical education major for either degree or teaching credential.

179. Supervised Field Experience (1-3) I, II

Prerequisites: Senior standing and consent of the department chairman.

Supervised practical experience in physical education.

180. Theory and Practice of Intercollegiate Sports (Men) (2-3)

Three units: 12 hours. Two units: 8 hours.

Concentrated study in field of interest, with emphasis on skill, strategy, tactics, rules, officiating, and organizational procedures.

Subject fields of 180 are as follows:

Offered in the Fall

180A Basketball (3)
180B Cross Country (2)
180C Football (3)
180D Gymnastics (3)
180E Swimming (2)
180F Water Polo (2)
180G Wrestling (3)

Offered in the Spring

180H Baseball (3)
180I Golf (2)
180J Rowing (2)
180K Tennis (2)
180L Track (3)
180M Volleyball (2)

181. History and Philosophy of Dance (2) II

(Offered in alternate years)

Survey of the cultural background of all forms of dance in various civilizations with emphasis on the relationship of the social structure to the existing dance forms.

182A. Dance Composition (Preclassic Forms) (3) I

(Offered in alternate years)

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

Compositions based on a study of preclassic dance forms as a contribution to form in contemporary dance. Study of the music of the period. Critical evaluation of group and individual compositions.

182B. Dance Composition (Modern Forms) (3) II

(Offered in alternate years)

Two lectures, three hours of laboratory.

Prerequisites: Physical Education 54 and 82.

Compositions related to contemporary art forms emphasizing the interaction of form and content in the creative idea. The temporal, spatial, dynamic, and dramatic elements of choreography.

183. Dance Production (3) II

Lecture-demonstration, recital, and concert forms of dance programs. Presentation and staging of original solo and group compositions.

184. Workshop in Dance (1-2) I, II

Choreographic techniques and skills with visiting master teachers; written report or project. May be repeated to a total of four units.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of special study adviser.

GRADUATE COURSES

200. Seminar (3)

An intensive study in advanced physical education, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Curriculum in Physical Education (3)

Prerequisite: Major or minor in physical education, or equivalent.

Analysis of current curricula in physical education. Special emphasis on curriculum construction and evaluation.

202. Administration of Physical Education in the Secondary Schools (3)

Prerequisite: Major or minor in physical education, or equivalent.

Topics include personnel problems, selection and maintenance of equipment and facilities, program organization and evaluation, budget, and related items.

203. History and Philosophy of Physical Education (3)

Prerequisite: Major or minor in physical education.

The historical and philosophical forces guiding the development of physical education from ancient to modern times.

204. Problems in Recreation (3)

(Same course as Recreation 204)

A survey of current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school and community situations. Analysis and evaluation of actual problems. Written reports required.

205. Current Trends and Issues in Physical Education (3)

A critical appraisal of contemporary trends and issues. Investigation and analysis of professional literature. (Formerly Physical Education 203, Problems in Physical Education.)

206. Seminar in Competitive Athletics for Men (3)

Prerequisite: Major or minor in physical education or recreation.

Knowledge and appreciation of the skills, techniques, and teaching methods involved with the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

207. Advanced Kinesiology and Biomechanics (3)

Prerequisites: Zoology 8, 22, and Physical Education 167.

Principles of mechanics applied to the analysis of human motion. Electromyography and cinematography as aids in analysis. Kinetic analysis of movement.

208. Advanced Physiology of Exercise (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 168.

Advanced aspects of the physiology of exercise. Effects of exercise on human beings in relations to health, longevity, morphology, and performance.

209. Advanced Adapted Activities (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 169.

Postural divergencies, lack of physical development, physical handicaps, and special programs. Individual exercise programs. Preventive and corrective exercises. Functional examinations and the physician's report. Ethical procedures and limitations.

210. Seminar in Facilities for Physical Education (3)

Prerequisite: Major or minor in physical education or recreation.

Individual study of problems related to the planning, development and maintenance of physical education and athletics facilities.

211. Advanced Evaluation in Physical Education (3)

Prerequisite: Physical Education 162.

Methods, statistical techniques, and apparatus used in testing physical performance. Sources of error, limitations on application and interpretation. Practice in construction and use of tests.

213. Problems in Women's Physical Education (3)

Prerequisite: Major or minor in physical education.

An intensive study of selected areas of the women's physical education program.

214. Seminar in Dance Programs (3)

Prerequisite: Major or minor in dance or physical education.

Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.

220. Principles of Neuromuscular Tension (3)
Prerequisite: Physical Education 167.
Theories underlying the causes of muscular hypertension and the application of hypokinetic principles in daily living.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCE

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Merzbacher (Chairman), Nelson, B., Stewart, P.
Associate Professor: Dessel
Assistant Professor: Thompson
Lecturers: Lembeck, Marion, Shideler

Offered by the Department

Master of Arts degree in the physical sciences for teaching service. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physical science with the A.B. degree in applied arts and sciences for students admitted to Teacher Education.

Teaching major in the physical sciences, with specialization in both elementary and secondary teaching, requiring an undergraduate major in physical science, or in one or more of the physical sciences. (See the section of this catalog on the School of Education.)

Minor in physical science.

PHYSICAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in Teacher Education)

This major is open only to students admitted to Teacher Education.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required for the degree; however, students planning to use this major for a credential in secondary teaching should include in the undergraduate program one of the teaching minors required for the credential.

Preparation for the major. Courses should include work in the areas of astronomy, chemistry, geology, mathematics, physics, and biology, and must include prerequisites for the upper division courses selected for the major.

Major. A minimum of 24 upper division units with at least 18 in the physical sciences. At least nine of these 18 units must be in either chemistry or physics. Up to six units may be in industrial arts, life sciences, or mathematics. All courses for the major must be approved by the adviser in physical science for teaching programs.

PHYSICAL SCIENCE MINOR

The minor in physical science consists of from 15 to 22 units and must include Physical Science 1, 2, 3, 4, and either 130 or 150, and at least three additional units of upper division courses approved by an adviser.

COURSES IN PHYSICAL SCIENCE

The courses listed below are designed to explore critically topics and concepts in the physical sciences selected for their challenge and significance, and presented in terms of their historical and intellectual development. These courses are important to the specialist in science and are of particular value to students in other major fields who seek to broaden and deepen their comprehension of the theoretical as well as the empirical aspects of science, especially as related to their own field of specialization and to contemporary problems and endeavors. This approach to the fundamentals of science is not emphasized elsewhere.

LOWER DIVISION COURSES

1. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

The nature of the physical universe with emphasis on the whole field of physical science rather than on its separate divisions. May be followed by or, preferably, taken with Physical Science 3 for laboratory credit in natural science.

2. Principles of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 5.

A continuation of Physical Science 1, which course is recommended but not a required prerequisite. May be followed by or, preferably, taken with Physical Science 4 for laboratory credit in natural science.

3. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 1.

Methods in physical science as illustrated by the use of significant examples from the various disciplines. The technique of observation, measurement, and discovery of relationships. Fulfills the general education laboratory requirement in the natural science area.

4. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 2.

A continuation of Physical Science 3. Fulfills the general education laboratory requirement in the natural science area.

5. Fundamentals of Physical Science (3) I, II

Not open to students with credit for or concurrent registration in Physical Science 1.

Topics selected from Physical Science 1 and 2 to give a single course for the benefit of those students intending to take only one semester of physical science.

UPPER DIVISION COURSES

110. Physical Oceanography (3) I, II

Prerequisite: Physical Science 1.

Physical aspects of tides, waves, and currents.

120. Physical Science for Elementary Teachers (3) II, Summer

An integrated study of the physical sciences for teachers in order to provide a broad background of information, a consideration of current developments, and an opportunity for individualized work. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

130. Modern Physical Science (3) II
Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescopy, supergalaxies. Not open for credit to physics majors.

135A-135B. IPS Physical Science (3-3) I, II
Two lectures and three hours of laboratory.

Prerequisites: Introductory course work in astronomy, geology, physical science or physics, and chemistry. Physical Science 135A is prerequisite to 135B.

Principles of physical science as presented in national curriculum study courses, particularly the IPS program of the Physical Science Study Committee.

140S. Contemporary Problems in Physical Science (1) Summer
A series of six weekly lectures on varied aspects of physical science. Reading and reports required of students enrolled for credit. May be repeated to a total of three units. These lectures are open to the public.

150. Readings in Physical Science (3) I
Reading of selected materials with informal class discussion of topics. Emphasis on the historical background, the philosophical implications, and the impact of science on thought and culture.

160. The Development of Scientific Thought (3) I, II
Prerequisites: Six units from astronomy, chemistry, geology, physical science, or physics; and Mathematics 21 or equivalent.

Basic scientific concepts and their historical development with emphasis on the problem of theory construction. The relationship between disciplined imagination and observational fact, as illustrated by selected case histories. Limitations of scientific inquiry.

170A-170B. Theoretical Oceanography (3-3)
Prerequisites for 170A: Mathematics 52 and Physics 4C. Prerequisite for 170B: 170A.

The application of hydrodynamics and thermodynamics to the system composed of the atmosphere and the oceans.

196. Advanced Physical Science (1-3) I, II
Prerequisite: Consent of instructor.

Selected topics in classical and modern physical science. May be repeated for additional credit with new subject matter for a total of six units.

199. Special Study (1-6) I, II
Prerequisite: Consent of instructor.

Individual study or laboratory work on a special problem in physical science selected by the student.

GRADUATE COURSES

200. Seminar (2 or 3)
An intensive study in advanced physical science, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis in one of the physical sciences for the master's degree.

PHYSICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus: Terhune

Professors: Clark, O., Garrison (Chairman), Moe, Morris, Skolil, Smith, L. E., Snodgrass, Teasdale, Wolter

Associate Professors: Bolte, Rehfuss, Templin

Assistant Professors: Cottrell, Craig, Delise, Nichols, P., Piserchio, Wolf, F.

Lecturer: Kalbfell, Nichols, M.

Offered by the Department

Master of Arts or Master of Science degree in physics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physics with the A.B. degree in liberal arts and sciences.

Major in physics with the B.S. degree in applied arts and sciences.

Major in chemical physics with the B.S. degree in applied arts and sciences.

Minor in physics.

Teaching major in physics with specialization in both elementary and secondary teaching.

Teaching minor in physics with specialization in both elementary and secondary teaching.

PHYSICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in physics must complete a minor in mathematics to include Mathematics 50, 51, and 52, or their equivalents, Mathematics 119, 170, and three units from Mathematics 121A, 150A, or 175. (Mathematics 104 is acceptable for students admitted to teacher education.) Additional mathematics is recommended for students planning graduate work in physics.

Preparation for the major. Physics 4A-4B-4C, 73, and Chemistry 1A-1B, or their equivalents. (25 units.)

Major. A minimum of 24 upper division units in physics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 175, and 190 or 198A and 198B. Students who plan to do advanced work in physics should include Physics 106, 114, 151, and 180 to have preparation acceptable for graduate work in physics. Electives must be approved by the department chairman.

PHYSICS MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major for the B.S. degree.

Preparation for the major. Physics 4A-4B-4C, 73; Chemistry 1A-1B; Mathematics 50, 51, and 52, or their equivalents. (38 units.)

Major. A minimum of 36-39 upper division units in physics and mathematics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 198A, and 198B; Mathematics 119 and 170. The program planned in consultation with the departmental adviser for this degree must be designed to provide either a four-year terminal program or preparation to enter the graduate program toward a master of science degree, The remaining courses are to be prescribed by the department chairman. Concentrations in the areas of applied physics, physical electronics, nuclear physics and teacher education are available in this degree.

CHEMICAL PHYSICS MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Preparation for the major. Physics 4A-4B-4C; Mathematics 50, 51, 52; Chemistry 1A-1B, 5, and 12 (43 units).

Major. A minimum of 39 upper division units which must include Physics 101, 105, 110, 175, and 190; Chemistry 110A, 110B, 112, and 127A; Mathematics 119 and 170. The additional units are to be chosen from the following courses. At least one physics laboratory and one chemistry laboratory are to be taken from Physics 120A, 120B, Chemistry 111 and 155.

PHYSICS MINOR

The minor in physics consists of from 15 to 22 units in physics, six units of which must be in upper division courses.

PHYSICS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Elementary Teaching

The major in physics for elementary teaching is the same as the undergraduate major for the A.B. degree in liberal arts and sciences or for the B.S. degree in applied arts and sciences. All courses in the teaching major must be approved by the adviser in physics for teaching programs.

Specialization in Secondary Teaching

The major in physics for secondary teaching is the same as the undergraduate major for the A.B. degree in liberal arts and sciences or for the B.S. degree in applied arts and sciences. All courses in the teaching major must be approved by the adviser in physics for teaching programs.

Postgraduate Year. Six units of course work in physics after the bachelor's degree (unless the six units are taken in the minor).

PHYSICS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in physics for elementary teaching consists of not less than 20 units in physics. All courses must be approved by the adviser in physics for teaching programs. Students in Teacher Education using this teaching minor for the degree must include at least six upper division units in physics.

Specialization in Secondary Teaching

The minor in physics for secondary teaching consists of not less than 20 units in physics. All courses must be approved by the adviser in physics for teaching programs. Students in Teacher Education using this teaching minor for the degree must include at least six upper division units in physics. If the major for secondary teaching is non-academic, at least 12 upper division units of physics must be taken.

LOWER DIVISION COURSES

Total credit in Physics 2A-2B, 3A-3B, 4A-4B-4C, and 5, limited to 12 units.

2A-2B. General Physics (3-3) I, II

Lectures, demonstrations and discussions.

Prerequisites: Two years of high school mathematics. Physics 2A is prerequisite to 2B. Recommended: Concurrent registration in Physics 2A and 3A, and in Physics 2B and 3B.

This course is for liberal arts and certain preprofessional students who do not desire intensive physics preparation. 2A properties of matter, mechanics, heat, and sound; 2B, light, electricity, magnetism, and atomic physics.

3A-3B. Physical Measurements (1-1) I, II

Three hours of laboratory.

Prerequisite for 3A: Credit or concurrent registration in Physics 2A.

Prerequisite for 3B: Physics 3A and credit or concurrent registration in Physics 2B.

A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light.

4A-4B-4C. Principles of Physics (4-4-4) I, II

Three hours of lecture and three hours of laboratory.

Prerequisite for 4A: Completion of high school physics or equivalent, and credit or concurrent registration in Mathematics 50.

Prerequisites for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.

Prerequisites for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

Certain students may, with consent of the Department, substitute credit in Mathematics 22 for the indicated mathematics courses.

This course is designed to give a thorough understanding of the fundamental principles of physics in the areas of mechanics, wave motion, heat, electricity, and light.

5. Introductory Physics (4) I, II

Three lectures and three hours of laboratory.

Some of the more important phenomena and concepts in physics with practical illustrations and applications. Not open to students with credit for Physics 2A, 2B, 4A, 4B, or 4C.

73. Introductory Electronics (3) I, II

Prerequisites: Physics 4B, or 2B and 3B, and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

UPPER DIVISION COURSES

101. Modern Physics (3) I, II

Prerequisite: Physics 4C.

Modern developments in physics, including an introduction to the quantum and relativity theories, and to the fields of atomic, nuclear and solid state physics.

103. Basic Electronics (3) I, II

Prerequisites: Physics 4B, or 2B and 3B, and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 73.

105. Analytical Mechanics (3) I, II

Prerequisites: Physics 4C and Mathematics 119.

Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies.

106. Optics (3) II

Prerequisites: Physics 4C, or Physics 2B and 3B, and a working knowledge of the calculus.

A study of reflection, refraction, dispersion, intereference, diffraction, double refraction and polarization, with applications to optical instruments. Also wave propagation, radiation, spectra and the nature of light.

110. Electricity and Magnetism (3) I, II

Prerequisites: Physics 4C; and credit or concurrent registration in Mathematics 119, and in Physics 73 or Physics 103.

Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dieletrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties.

112. Thermodynamics and Kinetic Theory (3) I, II

Prerequisites: Physics 4C and Mathematics 52.

Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics.

114. Acoustics (3) I

Prerequisites: Physics 73, 105, and 110.

Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogs.

120A-120B. Advanced Physical Measurements (2-2) I, II

Six hours of laboratory.

Prerequisites: Physics 4C; and credit or concurrent registration in Physics 73 or Physics 103, and in Physics 110.

A year course stressing laboratory experiments and measurements chosen from all the major areas of physics.

121. Radiation Physics (3)

Two lectures and three hours of laboratory.

Prerequisites: Physics 2B and 3B, or Physics 5.

X-rays, radioactivity, interactions of radiations with matter, and methods of measurement. May not be used in the physics major. Not open to students with credit in Physics 101.

122. Senior Physics Laboratory (2) I, II

Six hours of laboratory.

Prerequisite: Physics 120B.

Advanced experimental measurements in the fields of classical and modern physics, in one of the following areas: acoustics, nuclear physics, heat and thermodynamics, advanced electronics, electricity and magnetism, microwaves, solid state physics, and analog computers. Combinations of two areas in one semester may be taken with consent of the instructor. May be repeated with new material to a maximum of four units.

130. Physics for Elementary Teachers (3) I

Basic concepts, methods, and materials of physics for the elementary school. Topics in classical and modern physics. Open only to elementary teachers and elementary teacher candidates. Not open to students with credit in Physics 4A-4B-4C.

131. Astronautics (2)

Prerequisites: Mathematics 119 and Physics 105.

Applications of celestial mechanics to space flight with particular emphasis on the effect of velocity changes or errors on the vehicle orbit. Analysis of slow and fast energy transfer with tangential or intersecting departure and arrival.

133. Concepts of Physics (4) I

Three lectures and three hours of laboratory.

Prerequisites: Mathematics 51 or Mathematics 22, and Physics 2B and 3B with grades of C or better.

Unifying concepts of physics; conservation of momentum and energy, wave-particle models, conservative fields, relativity, and statistical physics.

135A-135B-135C. PSSC Physics (2-2-2)

One lecture and three hours of laboratory.

Prerequisites: Physics 2A-2B and 3A-3B.

A new approach to the study of major concepts of physics. Designed for those who plan to teach science. The course is based on test and laboratory materials prepared by the Physical Science Study Committee.

148. Nuclear Physics Laboratory (3) II

One lecture and six hours of laboratory.

Prerequisite: Physics 120B.

Techniques and instrumentation for the detection, identification and measurement of the properties of nuclear radiations and particles, and their use in the study of nuclear reactions.

151. Nuclear Physics (3) I, II

Prerequisites: Physics 112 and 190.

Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

152. Transients in Linear Systems (3) I

Prerequisites: Physics 110 and Mathematics 119.

Formulation and solution of equations of behavior of linear electrical and mechanical systems by the Laplace-transform method. Applications of the transform method to lumped parameter systems.

155. Analog Computers (3) II

Prerequisites: Physics 73, Mathematics 119, and 170.

Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; simulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations.

156. Digital Computers (3) I

Prerequisites: Physics 73, Mathematics 7, 119, and 170.

The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations.

160. Circuit Analysis (3) II

Prerequisites: Physics 73 and 110.

Filter design, transmission lines, and network analysis.

163. Electronics Laboratory (2) I

Six hours of laboratory.

Prerequisites: Physics 120B and concurrent registration in Physics 173A.

Dynamic tube and transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits.

166. Honors Course (Credit to be arranged) I, II

An individual study arrangement for students admitted to the Honors Program. Enrollment through the department chairman, subject to the approval by the Committee on Honors. Refer to the Honors Program.

167A. Semiconductor Devices (3) I

Prerequisites: Physics 101, 103 (or 73), 120A, 120B.

Semiconductor physics, diode and transistor mechanisms, equivalent circuits and applications, thermal stability, switching theory and applications.

167B. Semiconductor Devices (3) II
Prerequisite: 167A or consent of instructor.
Field effect devices, semiconductor lasers and photo detectors, four layer devices including SCR's, tunnel diodes, varactors and other microwave devices, thermoelectricity, Hall effect.

170. Electromagnetic Theory (3) I, II
Prerequisites: Physics 110 and credit or concurrent registration in Mathematics 170.
Electrostatics and magnetostatics treated by vector methods; Maxwell's equations. electromagnetic induction, radiation and wave propagation.

173A. Physical Electronics (3) I
Prerequisites: Physics 101, 110, 112, and Mathematics 170.
Conductors, Fermi model, thermionic, photoelectric, and field emission, contact potentials, space charge. Semiconductors, linear equivalent, circuits, elements of frequency and time domain analysis, linear feedback circuits.

173B. Physical Electronics (3) II
Prerequisites: Physics 160, 163, and 173A, each with a minimum grade of C.
Field approach to transmission lines, coaxial cables, wave guides, resonant cavities, stub matching, radiation and antenna phenomena, interaction of fields and electronic beams and power extraction from fields.

175. Advanced Mechanics (2) I
Prerequisites: Physics 105 and Mathematics 119.
Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates and theory of vibrations.

180. Solid State Physics (3) II
Prerequisites: Physics 101, 112, and 170.
Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semi-conductors, and metals.

190. Introductory Quantum Mechanics (3) I, II
Prerequisites: Physics 101, 105, 112, Mathematics 119 and 170.
The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation.

196. Advanced Physics (2 or 3)
Prerequisite: Consent of instructor.
Selected topics in classical and modern physics. May be repeated with the approval of the instructor for a total of six units.

198A. Senior Research (1) I, II
One discussion period and two additional hours per week to be arranged.
Prerequisite: Senior standing in physics and an acceptable master plan for graduation within one year.
Selection and design of individual research project. Oral and written progress reports.

198B. Senior Research (2) I, II
Two discussion periods and four additional hours per week to be arranged.
Prerequisite: Physics 198A with grade of C or better.
Laboratory work, progress reports, oral and written final reports.

199. Special Study (1-6) I, II
Individual study or laboratory work on a special problem in physics selected by the student. Each student will be assigned a member of the staff who will supervise his work. Credit, hours and topics to be arranged in each case. Six units maximum credit.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced physics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

205. Theoretical Mechanics (3)
Prerequisite: Physics 175.
An intensive study of mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action.

210A-210B. Mathematics of Physics (3-3)
Prerequisites: Mathematics 119 and 170 or equivalent. Physics 210A is prerequisite to Physics 210B.
Selected topics from matrix theory, vector and tensor analysis, orthogonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.

214. Advanced Acoustics (2)
Prerequisite: Physics 114.
An intensive study of the acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures. Radiation and scattering. Electrical-mechanical-acoustical elements and circuits.

219. Statistical Mechanics (3)
Prerequisites: Physics 112, 175, and 190.
Foundations of Statistical Mechanics. Applications to Physical Systems. Includes classical and quantum statistics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.

231. Advanced Astronautics (2)
Prerequisite: Physics 131.
Special emphasis on perturbations due to inhomogeneity of the central force field.

245A-245B. Reactor Theory (2-2)
Prerequisite: Physics 151 and 190.
Theory of chain reactions and their application to the operation of various types of reactors. Kinetics, theoretical design, and control of reactors in relation to the fundamental nuclear processes.

248. Reactor Laboratory (2)
Prerequisites: Chemistry 141, Physics 148, and concurrent registration in Physics 245A-245B.
Measurement of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiation, neutron flux properties and temperature effects. Use of the reactor as an experimental tool.

251. Nuclear Physics (3)
Prerequisites: Physics 151, 175, and 190.
Applications of quantum theory to nuclear physics. Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.

260. Advanced Electronics (3)
Prerequisite: Physics 173B.
Selected advanced topics in contemporary electronics.

270. Electromagnetic Theory (3)
Prerequisite: Physics 170.
Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

275. Quantum Mechanics (3)

Prerequisites: Physics 151, 175, and 190.

The physical basis of quantum mechanics. Schroedinger's wave equation, and Heisenberg's matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods.

280. Theory of the Solid State (3)

Prerequisites: Physics 175, 180, and 190.

The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.

297. Research (Credit to be arranged)

Prerequisite: Consent of department chairman.

Research in one of the fields of physics. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis in physics for the master's degree.

POLITICAL SCIENCE

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Bigger, Feierabend, I., Generales, Gripp, Janssen, Joy (Chairman), Kitchen, Leiffer, Padgett, Wilcox

Associate Professors: Andrain, Crain, Haak, Kahng

Assistant Professors: Dreyer, Hobbs, Johns, Jutkowitz, Lewin, Miles, Moe, R., Nesvold

Offered by the Department

Master of Arts degree with a major in political science, a Master of Science in Public Administration, and a Master of City Planning. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in political science with the A.B. degree in liberal arts and sciences.

Major in public administration with the A.B. degree in applied arts and sciences.

Major in public safety administration with the A.B. degree in applied arts and sciences.

Minor in political science or in public administration.

Certificate in public administration.

Teaching minor in political science with specialization in secondary teaching.

POLITICAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in political science must complete a minor in another field to be approved by the chairman of the major department.

Preparation for the major. Political Science 1, 2, 3, and a three unit course in statistics.

Major. A minimum of 24 upper division units to include (a) three units in Political Science 128, 197, or 198 and (b) 21 upper division units in political science distributed among at least four of the groups listed below, provided that at least three units shall be taken in Group II.

Group I, Research Methods. Courses numbered 100 to 104.
Group II, Political Theory. Courses numbered 105 to 114.
Group III, Politics. Courses numbered 115 to 129.
Group IV, Public Law. Courses numbered 130 to 139.
Group V, Public Administration. Courses numbered 140 to 164.
Group VI, International Relations. Courses numbered 165 to 179.
Group VII, Comparative Government. Courses numbered 180 to 195.

PUBLIC ADMINISTRATION MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Political Science 1 and 2 and Economics 1A-1B. (12 units.) A three-unit course in statistics must be taken either in lower division or as part of the upper division courses in the major.

Major. A minimum of 36 upper division units to include Political Science 140 and 197 or 198; Economics 131; and additional upper division courses to complete the major, selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division.

PUBLIC SAFETY ADMINISTRATION MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Political Science 1, 2, Sociology 1, and a lower division course in statistics. Students who plan to enter police work are strongly advised to take a minimum of 21 units of lower division course work in police science at an institution offering work in this field.

Major. A minimum of 36 upper division units to include Political Science 105, 140, and 197 or 198; six units selected from Sociology 110, 113, 114, 116, 123, 125, 140, 157; and 21 additional units selected from these sociology courses, or from Political Science 122, 143, 144, 147, X141, 152; Social Welfare 180; Psychology 106, 150.

POLITICAL SCIENCE MINOR

The minor in political science consists of from 15 to 22 units in political science, to include Political Science 1 and 2 (or 1 and 3), six units of upper division political science, and electives in political science to complete the minor.

PUBLIC ADMINISTRATION MINOR

The minor in public administration is offered by the Political Science Department. The minor is available to students majoring in fields other than political science or public administration. The minor consists of from 15 to 22 units to include Political Science 1 and 2, 140, and six units of upper division courses selected from Political Science 197, 198, or other upper division political science course approved by the adviser in public administration.

CERTIFICATE IN PUBLIC ADMINISTRATION

A Certificate in Public Administration (a nondegree program) is also offered by the Political Science Department. The certificate program is designed primarily for persons who hold administrative or managerial positions and those who seek to prepare for such responsibility.

Previous academic experience is not a prerequisite for beginning work on the certificate program. Candidacy will be established, however, by approval of the Director of Public Administration. To receive the Certificate in Public Administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Candidates for this certificate program may obtain further information on requirements by writing to the Director of Public Administration, San Diego State College.

POLITICAL SCIENCE MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The minor in political science for secondary teaching consists of not less than 20 units to include six units of lower division work and the remaining 14 or more units in upper division courses under advisement.

PROGRAMS FOR GOVERNMENTAL SERVICE

Students preparing to work in government service may wish to follow one of the programs named above, take minor work in political science or public administration, or advanced study for a master's degree. Also available is a program in Latin American Studies.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U.S. history, U.S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) Political Science 1 and 2.

(2) Political Science 115 and 142 or 143 or 148.

(3) Political Science 127A and 127B plus approved tests or courses on United States history, institutions and ideals.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

LOWER DIVISION COURSES

1. Introduction to Political Science (3) I, II

Basic concepts of political science including an introduction to the scope of the discipline and representative methods of acquiring political knowledge. Illustrative materials drawn primarily from the American experience.

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions.

2. Introduction to American Government and Politics (3) I, II

The origin and development, structure and operation of the government of the United States, national, state, and local.

Completion of both Political Science 1 and 2 will meet all requirements in American Institutions. Political Science 2 will meet the requirements in U.S. Constitution and California government.

3. Introduction to Comparative Government (3) I, II

Analytical models and techniques for examination of the problems of decision-making and control in various political systems. Emphasis on patterns of political action in various cultural contexts.

UPPER DIVISION COURSES

Research Methods (Group I)

100A-100B. Research Methods in Political Science (3-3)
Prerequisite: Political Science 1, 2, and a three unit course in statistics. Political Science 100A is a prerequisite to Political Science 100B.

The research process, from research design through data processing, analysis and interpretation. Problems of application to election statistics, census data, roll-call records, sample survey data, and biographical information.

Political Theory (Group II)

105. American Political Thought (3) I, II
A survey of the development of American ideas concerning political authority from the period of colonial foundation to the present time.

111A-111B. Theory of the State (3-3)
Prerequisite: Political Science 111A is prerequisite to 111B.

The nature of the State, its organization and activities, and its relation to the individual and other states.

112. Modern Political Thought (3) I, II
Concepts concerning the nature of the state from Burke to the present.

113. The Theory of Political Inquiry (3)
Prerequisite: Political Science 1, 2, and 3.

Philosophical bases of science with reference to political science. Concepts, concept formation, theory building, and verification.

114. Problems in Political Theory (3)
Prerequisite: Six units of upper division political theory.

Research methods in political theory; intensive development of selected issues.

Politics (Group III)

115. American Institutions (3) I, II
The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. Meets the graduation requirement in the United States Constitution and California state and local government. When taken with Political Science 142 or 143 or 148, will also meet requirements in American history, institutions, and ideals. Not open to students with credit in Political Science 2 or 71A or 71B.

116. American National Government (3) I, II
Prerequisite: Political Science 71A or 2 or 115, or History 17A and 17B.

An intensive examination of the primary institutions of the national government. Critical analysis of changing aspects of traditional relationships among the institutions of president, congress, and the judiciary.

120. Political Parties (3) I, II
A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. Special emphasis will be placed upon the function of the two-party system in American government.

122. Political Communication (3)
Prerequisites: Political Science 1 and 2.

Communication as a political process; the effects of political communications on individuals and groups.

123-S. Contemporary American Politics (3) Summer
A consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

124. Political Behavior (3)

Selected social and cultural factors affecting political behavior; role of groups in formation of political preference, participation, attitudes; voting behavior; emphasis on quantitative research data.

125. The Legislative Process (3) I, II

A detailed analysis of legislatures. Special attention will be devoted to the impact of dynamic factors on formal procedures.

127A-127B. Constitutional Government (3-3)

Modern government and politics; its theoretical foundations, institutions, and problems. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first. This year course meets the graduation requirement in the United States Constitution. The second semester course, 127B, also meets the graduation requirement in California state and local government.

128. Internship in Politics (2-6) I, II, Summer

Prerequisites: Political Science 120 and consent of instructor.

Students will be assigned selectively to functional areas of politics, such as political party headquarters, elective public offices and non-partisan political groups for work under joint supervision of activity heads and the course instructor. Participation will include project and internship conferences.

Public Law (Group IV)

136. Administrative Law (3) II

The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

138. Introduction to Jurisprudence (3) I

The development of legal systems and theories of the function of law.

139A-139B. American Constitutional Law (3-3)

Prerequisite: Political Science 139A is prerequisite to 139B.

Principles of American Constitutional law. Includes judicial review, the federal system, the separation of powers, the nature of selected Congressional powers, and the liberties protected by the constitution against national and state action. Meets the graduation requirement in the United States Constitution.

Public Administration (Group V)

140. Introduction to Public Administration (3)

Administration of public services; organization and procedure in theory and practice; dynamics of public management; politics and administration; responsible bureaucracy.

142. State Government (3) I, II

A study of the political structure and its operation used in the carrying on of the functions exercised by the state; state-federal relations; state-local government relations; particular emphasis on California government. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American History, institutions, and ideals, and in the U.S. Constitution.

143. Municipal and County Government (3) I, II

A study of the organization and its operation used to carry into effect the functions assigned to local governmental units; particular emphasis upon local government in California. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

144. Public Personnel Administration (3) I, II
Prerequisite: Consent of instructor.
Problems in recruitment, placement and supervision of public employees.

145. Administrative Behavior (3)
Prerequisite: Political Science 140.
Social, psychological, and behavioral theories of organization; concepts of administrative leadership; organization and the individual; emphasis on governmental organizations.

147. Government and Public Policy (3)
Prerequisites: Political Science 116 or 140 or 142 or 143.
Theory and practice of process of formulating public policy, roles of administrators, legislators, courts, interest groups, and political parties; public agencies and public interest, case studies in formulating public policies.

148. Government of Metropolitan Areas (3) I, II
Prerequisites: Political Science 142 or 143.
A study of the governmental problems of metropolitanism; overlapping of governments, services, planning and finance. The use of intergovernmental contracts for public service, proper public service areas, and special authorities. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

149. Comparative Public Administration (3)
Prerequisite: Political Science 140.
Administrative organization and process in selected foreign and American governments. Analysis of the cultural basis of administrative systems.

150. Community Political Behavior (3)
Prerequisites: Political Science 122 or 124 or 143 or 148.
Political problems and issues of urban and rural communities. Structure of political influence and decision-making. Political organization.

152. Administrative Management (3) I, II
Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

154. Intergovernmental Relations in the United States (3)
Prerequisite: Political Science 2.
Constitution, political and administrative characteristics of American federalism, including regionalism, interstate compacts, and grants-in-aid.

157. Public Relations of Public Agencies (3)
Prerequisite: Political Science 140.
Theory and practice of public relations in government. Public opinion and clientele groups in relation to administrative agencies. Problems in public relations of public agencies. Techniques of public relations.

160. Principles of Planning (3) I, II
An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents. and method of adoption.

161. Field Studies in Government (3) II, Summer
Prerequisite: Consent of instructor.
Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations.

162. Fiscal and Budgetary Policy (3)
Prerequisite: Political Science 140.
Policies of fiscal administration and budgeting; political implications of the governmental budget process; revenue, debt, and treasury management; the functions of accounting and financial reporting.

163. Planning for Housing and Urban Renewal (3)
Prerequisite: Political Science 160.
Political, social, economic aspects of planning for housing. Federal, state, and local problems and policies concerning blight, home construction, public housing, and urban renewal.

Honors Course

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

International Relations (Group VI)

165. Dynamics of Modern International Crises (3) I
Prerequisite: Consent of instructor.
The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the United States and the operations of the United Nations.

168-S. Institute on World Affairs (3) Summer
Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor.

170A-170B. International Relations (3-3)
A historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic, and strategic—which underlie and condition the modern conflict between the "sovereign state" and the "community of nations." Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict.

171. The Conduct of American Foreign Relations (3) II
An examination of the legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I
A critical analysis of the organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and consular corps; conferences; administration through commissions and unions; amicable procedures for settlement of disputes; the League of Nations-United Nations experiment.

173. Principles of International Law (3) I
The function of law in the international community. The historical development of the ideas and rules of international law and their place in the modern diplomatic and legal structure.

174. National Security Policy (3)
Objectives, instruments, and consequences of national security policy.

175. International Relations of the Latin American States (3) II
The foreign policies of the Latin American states; the organization of American states; relationships with the United Nations and with the United States.

176. International Relations of the Developing Nations (3)
Prerequisite: Six units of political science.
Cooperation and conflict between the developing nations and relations of such nations with the developed countries.

177. Comparative Foreign Policies (3)
Prerequisite: Six units of political science.
Comparison of foreign policies of nations in various regional, socio-economic, and ideological areas.

Comparative Government (Group VII)

180. Government of England (3) I
The structure and functioning of the English parliamentary system with emphasis upon present day political principles and parties.

181. Government of the Soviet Union (3) I
Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

182. Political Systems of South America (3)
Prerequisite: Political Science 1 or 3.
Government and politics of selected South American countries. Values, governmental institutions and patterns of political activity which condition domestic and foreign policy.

183. Governments and Politics of South and Southeast Asia (3)
The internal political systems and foreign policies of India, Pakistan, Thailand, and Indochinese area, Indonesia, and the Philippines.

184. The Mexican Political System (3)
Prerequisite: Political Science 1 or 3.
Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

185. Governments of Continental Europe (3) I, II
An analysis of the political systems of the countries of western continental Europe.

186. Comparative Communist Governments (3) I, II
A survey of the interrelations between the theory and practice of modern communism as found in representative communist systems.

187. Governments and Politics of the Far East (3)
The internal political structure and foreign policies of China, Japan, and Korea.

188. Governments and Politics of the African States (3) II
Domestic and international politics of specific African states.

189. Government and Politics of the Middle East (3) I, II
Survey of the governmental and political structures of representative states in the Middle East, including Turkey, Israel, and the Arab states.

190. Comparative Political Systems (3) I, II
Prerequisite: Political Science 3.
An examination of selected political and governmental systems for purposes of comparative study and analysis to determine similarities, differences, and general patterns and universals among political systems.

191. Governments and Politics of the Developing Areas (3) I, II
Prerequisite: Political Science 1 or 3.
Internal political systems, governmental structures, and the foreign policies of developing nations.

192. Political Change in Contemporary Africa (3) I
General pattern of nationalism in Africa south of the Sahara. Theories of social change and general features of contemporary African political development.

193. Proseminar in Cross-National Studies (3)
Prerequisites: Political Science 3 and Political Science 100A.

Cross-national analysis of institutional norms, attitudes, and behavior in relation to government; factors which determine patterns and styles of political participation in contemporary societies.

196-S. Institute of Public Affairs (1-3) Summer
Study of selected phases of American or Comparative Government. May be repeated to a maximum of six units of course credit with new content and consent of instructor.

197. Investigation and Report (3) I, II
Analysis of special topics. Admission by permission of instructor.

198. Internship in Public Administration (2-6) I, II
Prerequisite: Consent of instructor.

Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisites: Twelve units of upper division political science and consent of the instructor.

EXTENSION COURSES

X-141. Studies in Public Administration (1 to 3)
Analysis of selected administrative processes and problems of governmental agencies, their legal and political relations to other agencies and to the public. May be repeated with new content and consent of instructor.

X-151. California Law of Municipal Corporations (3)
California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

GRADUATE COURSES

200. The Scope and Method of Political Science (3)
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.

201. Scope and Method of Public Administration (3)
Prerequisite: Six units of upper division political science.

Evolution of large-scale public bureaucracies; development of public administration as an academic discipline; research methodologies of public administration.

210. Seminar in Political Theory (3)
Maximum credit six units applicable to a master's degree.

215. Seminar in American National Government (3)
Maximum credit six units applicable to a master's degree.

220. Seminar in Politics (3)
Maximum credit six units applicable to a master's degree.

230. Seminar in Public Law (3)
Maximum credit six units applicable to a master's degree.

240. Seminar in Public Administration (3)
Maximum credit six units applicable to a master's degree.

241. Seminar in Public Personnel Administration (3)
Prerequisite: Political Science 144.
Analysis of special problems of public service recruitment; recent developments in government pay administration; planning administration, and evaluation of executive development and other training programs; collective bargaining in government; construction and administration of tests; evaluation of total personnel program.

242. Seminar in Public Administration in Developing Nations (3)
Prerequisite: Political Science 140.
Selected problems in administration of economic and technical assistance programs; problems of administration in developing areas.

243. Science, Technology, and Public Policy (3)
Prerequisite: Political Science 200, 201, or equivalent seminar in another department.
The influence of science and technology on governmental policy-making; scientists as administrators and advisers; governmental policy-making for science and technology; government as a sponsor of research and development.

245. Readings in Public Administration (3) I, II
Prerequisite: Political Science 200, 201 or six graduate units of political science.
Selected readings in the literature of public administration.

249. Seminar in Comparative Administration (3)
Prerequisite: Political Science 140.
Selected problems in administration, organization, and processes of foreign and international governments. Maximum credit six units applicable to a master's degree.

250. Seminar in Local Government (3)
Selected problems of state and local government and inter-governmental relations. Maximum credit six units applicable to a master's degree.

255. Seminar in Metropolitan Government and Politics (3)
Prerequisite: Political Science 143 or 148 or 150.
Government and politics in the world's major metropolitan areas. Maximum credit six units applicable to a master's degree.

260. Administration and Public Policy Development (3)
Prerequisite: 12 upper division units in social science.
Social, political, and administrative problems involved in governmental program development and change.

266. Seminar in Urban Planning (3)
Prerequisite: Political Science 160.
Selected topics in city planning.

270. Seminar in International Relations (3)
Maximum credit six units applicable to a master's degree.

272. Seminar in International Organization (3)
Prerequisite: Political Science 172.
Analysis of selected problems of international organization with special reference to those of the United Nations. Oral and written reports.

275. Seminar in Theories of International Relations (3)
Prerequisite: Political Science 170A or 170B.
Theoretical concepts used in the study of international political systems. Maximum credit six units applicable to a master's degree.

280. Seminar in General Comparative Political Systems (3)
Prerequisites: Political Science 190 or 191, and three additional units of upper division political science.

Political Science

The field of comparative politics, including historical developments, major theoretical approaches, substantive concerns, uses and limitations of the comparative method, methodological innovations in study of foreign political systems.

281. Seminar in Western Political Systems (3)
Prerequisites: Six units of upper division political science.
Comparative study of European and other modern political systems. Conditions responsible for the attainment and maintenance of democratic government. The relationship between social modernity and the functioning of Western democratic political institutions.

282. Seminar in the Political Systems of the Developing Nations (3)
Prerequisites: Six units of upper division political science.
Theoretical analysis of political development, modernization, and industrialization in the emerging nations. Search for valid generalizations about the non-Western political process. Political trends and developments in the developing nations.

283. Seminar in Latin American Political Systems (3)
Prerequisites: Political Science 190 or 191, and three additional units of upper division political science.
Political developments in selected Latin American nations, with an emphasis on the Mexican political systems.

284. Seminar in Communist Political Systems (3)
Prerequisites: Six units of upper division political science.
The differences and similarities among Communist nations in Europe and Asia, with particular reference to instruments of power and ideology. A comparison of Communist ruling techniques and processes.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Problem Analysis (3)
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or thesis.

296. Internship in Public Administration (1-6)
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

297A. Research in Political Science (3)
Prerequisite: Consent of department chairman.
Research in political theory, political parties, comparative government, international relations, public law, or American government.

297B. Research in Public Administration (3)
Prerequisite: Consent of Director of Public Administration Program.
Research in one of the areas of public administration.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PORTUGUESE

IN THE DIVISION OF THE HUMANITIES

Faculty

Assistant Professor: Head

Offered by the Department of Spanish and Portuguese

Courses in Portuguese.

Major or minor work is not offered.

UPPER DIVISION COURSES

131. Portuguese (3) I

Prerequisites: 22 units of college Spanish, including Spanish 101A and 101B.

An accelerated course covering various aspects of the language and literature of the Portuguese world.

132. Portuguese (3) II

Prerequisite: Portuguese 131.

Continuation of Portuguese 131.

134. Portuguese Literature (3)

Prerequisites: Portuguese 131 and 132 with grade of C or better.

A study of important movements, authors and works in the literature of Portugal from its beginnings to the present.

135. Brazilian Literature (3)

Prerequisites: Portuguese 131 and 132 with grade of C or better.

A study of the important movements, authors and works of the literature of Brazil from the colonial period to modern times.

PSYCHOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Emeritus: Treat

Professors: Carlson, Daniel, Harrison, Hunrichs, Kaplan, Kinnon, Leukel, McCollom, O'Day, Penn, Rumbaugh, Sidowski, Stevens (Chairman), Turner, M. B., Voeks

Associate Professors: Alf, Dicken, Dorfman, Gallo, Grossberg, Karen, Kass, Koppman, McDonald, Psomas, Smith, J. R.

Assistant Professors: Emami, Feierabend, R., Gunderson, Harari, Hufford, Izawa, Levine, Linton, Lynn, Parker, Resnick, Rodin, Sand, Sanders, Sattler, Schulte

Lecturers: Johnson, L., Zemlick

Offered by the Department

Master of Arts degree with a major in psychology; a Master of Arts degree for teaching service with a concentration in psychology; and a Master of Science degree in psychology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in psychology with the A.B. degree in liberal arts and sciences.

Major in psychology with the A.B. degree in applied arts and sciences for students admitted to Secondary Teacher Education.

Minor in psychology.

Teaching major in psychology with specialization in secondary teaching.

Teaching minor in psychology with specialization in both elementary and secondary teaching.

PSYCHOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

Two plans are provided for the major in psychology: **Plan A** for those students who wish to extend their liberal arts education in the field of psychology; and **Plan B** for those students expecting to pursue the study of psychology beyond the A.B. degree.

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of his expanding group relations leading to happy and effective family and community living. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Preparation for the major. Psychology 40 and 50. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 106, 131, and 145. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 105, 107, 122, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1A-1B; Biology 1, 159, 160; Economics 1A-1B, 102; Health Education 90; Philosophy 1A-1B; and courses in home economics.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Preparation for the major. Psychology 40, 50, and 70. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 105, 110, 178, and one of the following: 111, 112, 113, 114, 115, or 116; and ten additional units selected from courses in consultation with the departmental adviser.

PSYCHOLOGY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in Secondary Teacher Education)

This major is available in applied arts and sciences only to students who have been admitted to and continue in Teacher Education to time of graduation.

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Psychology 40, 50, and 70. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 105, 110, 131, 151, and twelve additional units in psychology selected with approval of the departmental adviser.

PSYCHOLOGY MINOR

The minor in psychology consists of from 15 to 22 units in psychology, nine units of which must be in upper division courses.

PSYCHOLOGY MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

Specialization in Secondary Teaching

The major in psychology for secondary teaching is the same as the undergraduate major for the A.B. degree in applied arts and sciences described above.

Postgraduate Year. Six units of postgraduate courses acceptable toward the credential.

PSYCHOLOGY MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in psychology for elementary teaching consists of 21 units to include in the lower division, Psychology 1 and one other three-unit course in psychology; and in the upper division, Psychology 106, 131, 145, and six units of electives from upper division psychology courses.

Specialization in Secondary Teaching

The minor in psychology for secondary teaching consists of 21 units to include in the lower division, Psychology 1 and one other three-unit course in psychology; and in the upper division, Psychology 106, 131, 145, and six units of electives from upper division psychology courses.

LOWER DIVISION COURSES

1. General (3) I, II

An introduction to some of the facts, principles, and concepts which are basic to understanding human behavior. A required general education course in psychology.

2. Studies in General Psychology (3)

Prerequisite: Psychology 1.

Readings in great experiments from various fields of psychology to illustrate scientific method applied to human behavior. Lectures, demonstrations, and participation in classroom experiments to emphasize scientific method as a way of thinking. Designed as a general course for non-majors.

3. Psychology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Psychology 1.

Application of experimental methods to psychological problems. Includes design and execution of experiments.

11. Applied Psychology (3) I, II

Prerequisite: Psychology 1.

A survey of the application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields.

12. Psychology of Individual Adjustment (3) I, II

Prerequisite: Psychology 1.

An examination and interpretation of the factors which go into the making of the person as he adapts himself to the social world about him. The development of the normal personality.

40. Advanced General Psychology (3) I, II

Prerequisite: Psychology 1.

Principles of psychology as illustrated in the areas of learning, perception, motivation, personality, and social psychology.

50. Introduction to Physiological Psychology (3) I, II

Prerequisite: Psychology 1.

Physiological mechanisms underlying the psychological phenomena of sensation, perception, emotion, motivation, learning and psychosomatic disorders.

70. Statistical Methods in Psychology (3) I, II

Prerequisite: Psychology 1 and Mathematics 3 or 18 or a higher numbered mathematics course.

An introduction to the use of quantitative methods in psychology, with emphasis upon measures of central tendency and variability, graphic methods and percentiles, linear correlation, and the applications of the normal probability curve. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

UPPER DIVISION COURSES

105. Psychological Testing (3) I, II

Prerequisite: One of the following courses: Psychology 70, Education 120, 151, or 152, or a semester of statistical methods in any other department.

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

106. Developmental Psychology (3) I, II

Prerequisite: Psychology 1.

A study of the psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life.

107. Psychology of Later Maturity (3) II

Prerequisite: Psychology 1.

The psychological, physiological, and sociological factors influencing behavior in the later years of life.

109. Mental Deficiency (3) I, II

Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or equivalents.

The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

110. Introduction to Experimental Psychology (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 40, 50, and 70.

Lectures and experiments emphasizing understanding of experimental design, quantitative methods, and experimental reports as they are applied to all areas of psychology.

111. Experimental Psychology: Perception (4)

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of perception.

112. Experimental Psychology: Social (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Psychology 110.

Experimental literature, assigned and original laboratory projects in the field of social psychology.

113. Experimental Psychology: Physiological (4)
Two lectures and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of physiological psychology.

114. Experimental Psychology: Comparative (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of comparative psychology.

115. Experimental Psychology: Personality (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of personality.

116. Experimental Psychology: Learning (4)
Two lectures and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental literature, assigned and original laboratory projects in the field of learning.

121. Personnel and Industrial Psychology (3) I, II
Prerequisite: Psychology 70 or statistics in another field.
Psychological principles applied to problems of selection and assignment of industrial personnel, employee training, and fatigue.

122. Public Opinion Measurement (3) I
(Same course as Journalism 122)
The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

123. Organizational Psychology (3) I, II
Prerequisite: Six units of psychology and consent of instructor.
The interplay of men and organizations. Psychological literature of the individual and his motivation to work, working in groups, industrial organizations, communications and conflict in industrial organizations.

124. Engineering Psychology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Psychology 1.
Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the interrelations between man and machines. Motion-study, work arrangement, fatigue, and environmental influences in relation to production.

131. Psychology of Personality (3) I, II
Prerequisite: Six units of psychology.
The principles of personality and their application to problems of adaptation and mental hygiene.

133. Principles of Interviewing (3)
Prerequisite: Six units of psychology. Recommended: Psychology 12 or 131.
Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel appraisal and development.

141. Neural Bases of Behavior (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Psychology 50 or six units in the biological sciences.
Elements of neurology and psychobiology with emphasis on sensory, central, and motor mechanisms.

142. Physiological Psychology (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Psychology 40 and 50 and three hours of biology; or nine hours of biology.
The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; brain and behavior disorders.

145. Social Psychology (3) I, II
Prerequisite: Psychology 1.
The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Sociology 140.

150. Abnormal Psychology (3) I, II
Prerequisite: Six units of psychology.
The psychology of behavior disorders, with emphasis on the amentias, neuroses, and psychoses.

151. Introduction to Clinical Appraisal (3) I, II
Prerequisites: Psychology 105 and 150, or Education 170 plus Education 151 or 152 or 120; and one additional course in psychology selected from the following: Psychology 105, 106, 131, 142, or 150.
A study of diagnostic devices in psychology, tests of clinical significance, ratings, and interviewing. Projective and case study, analyses; problems of insight, rapport, empathy, and prediction of individual behavior.

152. Introduction to Methods of Counseling (3) I, II
Two lectures and two hours of activity periods.
Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.
An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit in Psychology 233 or Education 233.

153. Advanced Abnormal Psychology (3)
Prerequisite: Psychology 150.
An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasias, ataxia, mental defect, and psychopharmacology.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Advanced Statistics (3) I, II
Prerequisite: Psychology 70.
A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

175. Theories of Learning (3) I, II
Prerequisites: Psychology 1, 40, 50, and 70.
A critical study of the facts, principles, and major theories of learning.

176. Principles and Practice of Personnel Training (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Psychology 121, 175, and consent of instructor.
Techniques and apparatus appropriate for training of personnel. Supervised practice in analyzing training needs, designating required terminal behavior, devising a training technique, writing and validating a training aid.

177. History of Psychology (3) I, II
Limited to psychology majors with senior standing and to graduate students.
A survey of the historical background of modern psychology.

178. Theories of Personality (3) I, II

Prerequisite: Major in psychology with senior or graduate standing.

Integration of the findings from perception, learning, motivation, and from physiological and social psychology through a systematic treatment of personality theories and of related experimental data.

179. Philosophical Issues in Psychology (3) II

Prerequisite: Twelve units in psychology.

Modern empiricism and the philosophy of science as related to issues in contemporary psychology.

180-S. Contemporary Problems in Psychology (1) Summer

Lectures open to the public.

Enrollment for credit limited to upper division and graduate majors in psychology; or consent of instructor.

A series of six weekly lectures by visiting psychologists on subjects related to current research problems. Reading and reports required of students enrolled for credit.

197. Senior Project (1-6) I, II

Prerequisites: Twelve units in psychology and consent of instructor.

An individual investigation and report on a research project. May be repeated to a maximum of six units.

199. Special Study (1-6) I, II

Individual study, including library or laboratory research and a written report. Six units maximum credit.

Prerequisite: 24 upper division units of psychology or consent of instructor.

GRADUATE COURSES

200. Seminar (3)

Prerequisite: 24 upper division units of psychology or consent of instructor.

An intensive study in advanced psychology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Seminar (3)

Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department.

A review, integration, and supplementation of the student's knowledge of psychology.

202A-202B. Contemporary Psychology (3-3)

Prerequisite: Bachelor's degree in psychology.

A comprehensive survey of contemporary literature in psychology, dealing with recent developments in the areas of learning and motivation, perception, psychophysiology, personality and psychodynamics, social behavior, and experimental inference.

204. Individual Psychological Testing (4)

Two lecture and six hours of laboratory.

Prerequisites: Psychology 70 and 105.

Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler scales, and some similar tests.

205. Advanced Mental Testing (4)

Two hours of lecture and six hours of laboratory.

Prerequisites: Psychology 151 and 204.

The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler scales and the Stanford-Binet are stressed.

211. Advanced Clinical Psychology (3)
Two hours of lecture and three hours of laboratory.
Prerequisites: Psychology 151, 152, and 204.
Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases.

220. Seminar in Human Relations in Industry (3)
Prerequisite: Psychology 121 or Business Administration 145.
Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership.

221. Seminar in Problems in Social Psychology (3)
Prerequisites: Psychology 145, 110 and 175; or consent of instructor.
Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal conflict.

222. Seminar in Theoretical Psychology (3)
Prerequisites: Psychology 175 and 178.
Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations.

223. Experimental Design (3)
Prerequisites: Psychology 170 and 110.
Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results.

224. Advanced Experimental (3)
One lecture and six hours of laboratory.
Prerequisite: Psychology 223.
Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.

225. Principles of Test Construction (3)
Prerequisites: Psychology 170 and 105.
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

231. Seminar in Ethology and Comparative Psychology (2)
(Same course as Biology 231)
Prerequisite: Psychology 113 or Biology 110, or consent of instructor.
A seminar in the types of species specific behavior patterns and their function in the living system of animals. May be repeated with new content to a total of four units.

233. Counseling and Psychotherapy Laboratory (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 110, 151, 152, 175, and 178, or consent of instructor.
Supervised research and practice in interpersonal encounter, with emphasis on the attainment of personality change.

234. Projective Psychology (3)

Prerequisites: Psychology 151, 178, and 204.

Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices.

235. The Rorschach Method (3)

Prerequisite: Psychology 234.

A seminar and practicum in basic administration and scoring of the Rorschach Test, with critical appraisal of the problems involved in estimations of reliability and validity of this technique.

236. Interpretation of Projective Materials (3)

Prerequisite: Psychology 235.

A seminar in the clinical interpretation of the Rorschach Test, the Thematic Apperception Test, and other projective devices, with critical emphasis on methods of research and validation. Not acceptable for credit toward the M.S. degree in psychology.

296. Directed Field Experience (1-6)

Limited to classified graduate students in psychology, with appropriate qualifications in a field of professional skill.

The student must arrange his practicum setting in cooperation with the chairman of the Psychology Department Practicum Committee and with the express approval of that committee during the semester prior to enrolling for credit in this course.

297. Research (1-6)

Research in one of the fields of psychology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)

Prerequisite: Consent of instructor.

Individual projects involving library research or laboratory research in physiological, industrial, learning, clinical, and other areas of experimental psychology. Maximum credit six units.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree. Credit is contingent upon acceptance of the completed thesis by the Department of Psychology.

RECREATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Associate Professor: Hanson (Chairman)

Assistant Professors: Blass, Butler

Offered by the Department

Major in recreation administration with the A.B. degree in applied arts and sciences.

Minor in recreation.

RECREATION ADMINISTRATION MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

Recreation

The major in recreation administration may be planned with an emphasis in one of the following three areas: (1) Leisure Agency Leadership, (2) Park and Recreation Management, or (3) Recreation Rehabilitation.

A minor is not required with this major.

EMPHASIS IN LEISURE AGENCY LEADERSHIP

Preparation for the major. Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B, 53; Music 2; and Sociology 1. (18½ units.)

Major. 37 units to include Recreation 140, 165, 184 (two semesters); Psychology 106; Industrial Arts 101; Health Education 146; Physical Education 151, 175 (or Speech Arts 110), 176 (or Art 110); Sociology 114, 125 and three units of upper division electives from sociology or psychology.

EMPHASIS IN PARK AND RECREATION MANAGEMENT

Preparation for the major. Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B, 53; Music 2; and Sociology 1. (18½ units.)

Major. 38 units to include Recreation 140, 165, 184 (two semesters); Journalism 180; Industrial Arts 101; Psychology 106; Political Science 140, 143, 144; Botany 112 and six units to be selected from Sociology 114, 125, or 157.

EMPHASIS IN RECREATION REHABILITATION

Preparation for the major. Recreation 40, 60, 70, 80; Physical Education 32A, 33A, 33B, 53; Music 2; Sociology 1; and Biology 22. (21½ units.)

Major. 38 units to include Recreation 150, 165, 184 (two semesters); Industrial Arts 101; Psychology 106, 107 or 109, 145, 150, 152; Physical Education 151; Speech Arts 110 or 142, and three units to be chosen from Sociology 113, 121, or 123.

RECREATION MINOR

The minor in recreation consists of from 15 to 22 units to include the following: Lower Division: Recreation 60, 70, 80, and two units from the fields of art, dance, drama, or music. Upper Division: Recreation 140, or Speech Arts 110; Recreation 165 and 184. Recommended: Physical Education 151, 173, 175, 176, Industrial Arts 101, Psychology 106, Political Science 144, and Recreation 150.

LOWER DIVISION COURSES

40. Theory of Leisure (3) I, II

History of leisure; the challenge of automation and shortened work-weeks; changing attitudes with regard to recreational pursuits; creative use of leisure.

60. Introduction to Community Recreation (2) I, II

Scope of community recreation; basic philosophy of leisure time agencies; leadership theory; organizations for youth; program planning; and playground practices.

70. Recreation Leadership (2) I, II

One lecture and three hours of laboratory.

Principles and practices of recreational leadership. Practice in planning and conducting programs in social recreation, dramatics, music, and simple handicrafts.

80. Camp Leadership (2) I, II, Summer

Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

UPPER DIVISION COURSES

140. Conduct of Recreational Sports (2) I, II
Two lectures plus outside practical experience in the conduct of recreational sports programs.

Organization of competition, community sports programs, administration of intramural athletics, and techniques of officiating.

150. Recreation in Medical Settings (3) I, II
Recreational activities as a means of rehabilitation. Modification of activities to meet the needs of the mentally retarded, physically and emotionally ill, and the handicapped. Designed for social workers, nurses, therapists and special education teachers.

165. Administration of Community Recreation (3) I, II
Prerequisite: Recreation 60.

Principles of organization and administration of leisure time agencies. Executive functions and problems; financing and budgets; administration of areas and facilities; inter-agency relationships; recruitment, training, supervision, and evaluation of part-time and volunteer staff.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

184. Field Work in Recreation (3) I, II
Prerequisite: Recreation 60, 70.

For recreation majors and minors only.

Observation and participation in supervised group activities in the field. Practical experience in the various public and semipublic community recreation agencies. May be repeated for a maximum of six units credit.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisite: Consent of special study adviser.

GRADUATE COURSES

204. Problems in Recreation (3) (Alternate years)
(Same course as Physical Education 204)

A survey of current problems facing the recreation profession, a review of literature, and discussion of trends, together with the analysis and evaluation of actual problems. Written reports are required.

205. Park Management (3) (Alternate years)
Prerequisite: Recreation 165.

Fundamentals of general park maintenance. Principles of planning and development. Personnel and budget problems unique to park management. Coordination of activities with other public agencies.

RELIGIOUS STUDIES

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in religious studies are drawn from departments in the Division of Humanities.

Offered by the Division of the Humanities

Minor in Religious Studies.

RELIGIOUS STUDIES MINOR

The minor in religious studies consists of from 15 to 22 units to include Religious Studies 120A and 120B, at least 6 units from English 115, Religious Studies 125, Philosophy 135, Philosophy 150A, or Philosophy 150B, and the remainder of the units to be chosen from Anthropology 153, Sociology 138, or any of the above course not required or previously chosen. Recommended courses to supplement the minor: Greek 1, 2, and 103; Japanese 1, 2, 3, and 4; Latin 1, 2, 3, 103; History 197A-197B; Humanities 59A-59B; Philosophy 125, 128, and 129.

120A-120B. World Religions (3-3)
Prerequisite: Six units in humanities or the social sciences.

An introduction to the issues raised by myth, ritual, and dogma in their social and cultural contexts. First semester: western religions—especially Judaism, Christianity and Islam. Second semester: eastern religions—especially Hinduism and Buddhism. (Formerly Humanities 120A-120B.)

125. The Dynamics of Religious Experience (3)
Prerequisite: Six units in humanities or social sciences.

Introduction to chief data and major approaches in the study of individuals' religious behavior and experiences. Special attention is given to relevant problems in world religions and philosophical views of man.

RUSSIAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Associate Professor: Dukas (Chairman, German-Russian)

Assistant Professors: Fetzer, Kozlik

Offered by the Department of German and Russian

Major in Russian with the A.B. degree in liberal arts and sciences.
Minor in Russian.
Teaching major in Russian with specialization in secondary teaching.
Teaching minor in Russian with specialization in both elementary and secondary teaching.

RUSSIAN MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in Russian must complete a minor in another field to be approved by the departmental adviser in Russian.

Preparation for the major. Russian 1, 2, 3, 4, 10, and 11. (20 units.) Recommended: History 4A–4B.

Major. A minimum of 24 upper division units in Russian to include Russian 101A-101B, 102A-102B, and 12 units in the period literature of the language.

RUSSIAN MINOR

The minor in Russian consists of from 15 to 22 units in Russian, six units of which must be in upper division courses.

RUSSIAN MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Proficiency Examination: Before taking a student teaching assignment in Russian, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

Specialization in Secondary Teaching

Preparation for the major. Russian 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in Russian to include Russian 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of Russian in the period literature of the language.

Postgraduate Year. Six units of graduate courses in Russian.

RUSSIAN MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Proficiency Examination: Before taking a student teaching assignment in Russian, the candidate for the credential may be required to pass an oral and written proficiency examination in the language, administered by the Department of German and Russian. The candidate must consult with the chairman of the Department of German and Russian concerning this examination.

Specialization in Elementary Teaching

The minor in Russian for elementary teaching consists of not less than 20 units in Russian, six units of which must be in upper division courses.

Specialization in Secondary Teaching

The minor in Russian for secondary teaching consists of not less than 20 units in Russian, exclusive of course equivalents, to include in the lower division, Russian 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, Russian 101A, 101B, 102A, 102B, and 122.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Russian may be counted as the equivalent of Russian 1; three years the equivalent of Russian 2; and four years the equivalent of Russian 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar.

Russian

2. Elementary (4) I, II
Four lectures and one hour of laboratory.
Prerequisite: Russian 1.
Continuation of Russian 1.

3. Intermediate (4) I
Prerequisite: Russian 2 or three years of high school Russian.
A practical application of the fundamental principles of grammar. Reading in Russian of cultural material, short stories, novels or plays; oral practice.

4. Intermediate (4) II
Prerequisite: Russian 3.
Continuation of Russian 3.

8A-8B. Scientific Reading (2-2)
Prerequisite: Russian 2 or three years of high school Russian. 8A is prerequisite to 8B.
Intensive reading in scientific fields.

10. Conversation (2) I
Prerequisite: Russian 2 or three years of high school Russian.
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: Russian 10 or Russian 3, or four years of high school Russian.
Continuation of Russian 10.

40. Russian Civilization (2) I
(Same course as Humanities 52)
Conducted in English. No prerequisite.
The major currents and characteristics of Russian culture, as expressed through the centuries in literature, art, philosophy, and music.

41. Russian Civilization (2) II
(Same course as Humanities 53)
Conducted in English. No prerequisite.
Continuation of Russian 40.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3)
Prerequisite: Russian 4.
Translation into Russian from moderately difficult English prose, with written reports in Russian. Readings and oral discussions of Russian plays and short stories.

102A-102B. Survey of Russian Literature (3-3)
Prerequisite: Russian 4.
A study of Russian literature from its beginnings, with emphasis on the nineteenth and twentieth centuries.

103. Old Russian Literature (3)
Prerequisite: Russian 4.
Masterpieces of Russian literature before 1700.

104. Russian Literature of the 18th Century (3)
Prerequisite: Russian 4.
Russian Classicism and Sentimentalism.

105A-105B. The Russian Short Story, Drama, and Poetry of the 19th Century (3-3)
Prerequisite: Russian 4.
Development of the Russian short story, drama, and poetry of the 19th Century.

110A-110B. The Russian Novel of the 19th Century (3-3)
Prerequisite: Russian 4.
Development of the Russian novel of the 19th Century.

122. The Foreign Language Laboratory (2)
Conducted in English.
Prerequisite: Admission to Teacher Education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Italian, or Spanish 122. To be taken concurrently with Education 121E.

130. Russian Syntax and Stylistics (2)
Prerequisite: Russian 101A-101B.
The structure of contemporary Russian.

131. Russian Phonology and Morphology (2)
Prerequisite: Russian 4 and 11.
The sounds and forms of contemporary Russian.

140. Russian Civilization (2) I
(Same course as Humanities 152)
Conducted in English. No prerequisite.
An advanced course in Russian culture of the past and present, with emphasis on the arts, philosophy, literature, and music.

141. Russian Civilization (2) II
(Same course as Humanities 153)
Conducted in English. No prerequisite.
Continuation of Russian 140.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

GRADUATE COURSES

201. History of the Russian Language (3)
Prerequisite: Twelve units of upper division Russian.
The historical development of the Russian language.

202A-202B. Old Church Slavic (3-3)
Prerequisite: 12 units of upper division Russian.
Structure of Old Church Slavic with readings and analysis of medieval Slavic texts.

204A-204B. The Soviet Novel and Short Story (3-3)
Prerequisite: 12 units of upper division Russian.
Intensive study of major writers of Soviet prose fiction.

205. Russian Poetry from Pushkin to the Present (3)
Prerequisite: Twelve units of upper division Russian.
The major Russian poets of the ninteenth and twentieth centuries.

SOCIAL WELFARE

IN THE SCHOOL OF SOCIAL WORK

Faculty

Professors: Tebor, Witte (Dean)

Assistant Professors: Baily, Gotkowitz, Harper, A., Haworth, J.

Appointment Under Grant from Outside Funds

Associate Professor: Pilcher

Offered by the School of Social Work

Major in social welfare with the A.B. degree in liberal arts and sciences.

Minor in social welfare.

SOCIAL WELFARE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

A minor is not required with this major.

The major in social welfare is offered by the School of Social Work. This curriculum provides preparation for: (1) more effective participation in community affairs, based on an understanding of modern society's complex social welfare programs; (2) immediate employment in those social welfare positions which do not require professional social work education at the graduate level; and (3) admission to graduate professional schools of social work. This curriculum should be pursued by those who plan careers in federal, state, or local social welfare agencies.

Preparation for the major. Anthropology 1B; Economics 1A-1B; Sociology 1, 10 and 60; and Psychology 40 (21 units). Recommended: Biology 1 and 2, Political Science 1 and 2, and courses in physiology.

Major (undergraduate): Thirty upper division units distributed as follows: Social Welfare 100A-100B, 180A-180B, 182, and 189A-189B; Sociology 140 or Psychology 145; three units selected from Psychology and three units selected from Sociology.

Recommended: Social Welfare 187 (strongly recommended for those students planning to seek admission to the San Diego State College School of Social Work), Sociology 122, Psychology 106, Biology 159, and courses from anthropology, literature, history, philosophy, political science, economics, psychology, and sociology. Students should consult with their adviser in social welfare for selection and arrangement of courses.

SOCIAL WELFARE MINOR

The minor in social welfare consists of from 15 to 22 units in social welfare, at least nine units of which must be in upper division courses.

LOWER DIVISION COURSES

35. Courtship and Marriage (3) I, II

(Same course as Home Economics 35)

Emphasis on preparation for successful marital adjustment; presentation of materials to help students understand and meet their own courtship, marriage, and family problems. Not open to students with credit in Home Economics 35, Sociology 35, or other course in courtship and marriage or marriage and the family.

80. Introduction to Social Welfare (3) I, II

Two lectures and three hours of field work.

Orientation to the field of social welfare. Readings, class discussions, and observation of social welfare activities in the community.

UPPER DIVISION COURSES

100A-100B. Man in Society (3-3) I, II
Prerequisites: Biology 1 and 2, Psychology 1, and Sociology 1; Social Welfare 100A is a prerequisite to 100B.
Biological, psychological, and social aspects of human growth and development from birth to death. Integration of concepts from various disciplines.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

180A-180B. Social Welfare as a Social Institution (3-3) I, II
Prerequisites: Sociology 1 and 10; Social Welfare 180A is prerequisite to 180B.
The institutional nature of social welfare and its relationship to other institutions in society.

182. Social Work as a Profession (3) I, II
Prerequisite: Social Welfare 100B and 180B.
Social work as a profession; its philosophical bases, values, norms, functions, methods, and occupational roles.

185. Public Welfare (3) II
A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare policies and programs.

187. Current Developments in Social Work (3) II
Prerequisites: Sociology 60; Social Welfare 100B and 180B.
Sources, nature, and uses of social work theory and research. Application of the principles of scientific analysis to the study of social welfare institutions and the practice of social work.

188. Probation and Parole (3) I
Basic concepts, history, legislation, and practices used in work with juveniles and adults who have been placed on probation or parole; criteria of selection, methods of supervision, and elements of case reporting.

189A-189B. Field Experience in Social Welfare (3-3) I, II
One lecture and eight hours of field work.
Prerequisites: Social Welfare 100B and 180B; Social Welfare 189A and credit or concurrent registration in 182 are prerequisite to 189B.
Laboratory field assignments in selected social welfare activities.

197. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics in social welfare.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

SOCIAL WORK

IN THE SCHOOL OF SOCIAL WORK

(The graduate program of the School of Social Work is accredited by the Commission on Accreditation of the Council on Social Work Education.)

Faculty

Professors: Maxwell, Ontell, Stumpf, Tebor, Witte (Dean)
Associate Professors: Guzzetta, Kemp, Lee, W.
Assistant Professors: Booth, Gelfand, Goldstein, Granger, Griffin, Haworth, G., Herman, Kahn, Kooi, Lee, M., Logan
Instructor: Lucius

Social Work

Appointments Under Grants from Outside Funds

Professor: Travis

Associate Professors: Aikens, Andresen, Hall, Kukkonen, Miller, Minyard, Morgan, Peer, Schiffrin

Assistant Professors: Arroyo, Brewer, Clary, DePew, Dorsey, Murphy, Rogers, Schlatter, Shenko, Varconi

Instructor: Zahnd

Lecturers: Boea, Brown, Carnegie, Dixon, Duckworth, Gilbert, Patton, Ryan, Seckler, Townsend, Worcester, Yonemitsu

Offered by the School of Social Work

Master of Social Work, a two-year degree. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

GRADUATE COURSES

Prerequisite for enrollment in all graduate courses: admission to the School of Social Work.

200. Social Welfare Policy and Services I (3) I

Social welfare as part of the social structure; analysis of major issues, problems, approaches, and possible solutions from historical, philosophical, and comparative points of view, with special examination of deprivation from whatever cause.

201. Social Welfare Policy and Services II (3) II

Prerequisite: Social Work 200.

Public and voluntary programs related to income maintenance, with special emphasis on the philosophy, methods, issues, and problems. Consideration of the social insurances, public assistance, employment services, labor standards, and protective legislation.

202. Social Welfare Policy and Services III (3) I

Prerequisite: Social Work 201.

Public and voluntary programs related to other social welfare services and policy issues. Relationship between public and voluntary programs. Methods through which communities organize and maintain their social welfare services.

205. Social Work Administration I (2) II

Prerequisite: Social Work 202 or consent of the Dean.

Administration as an aspect of all social work practice. Nature of social work administration involving board and staff participation in determining goals and in planning programing and management operations to achieve goals. Administrative organization; interagency policy and control; management processes.

220. Human Behavior and Social Environment I (4) I

Human beings as functioning organisms in society. Integration of knowledges of human behavior and social environment covering biological, psychological, and psycho-social process from birth to death for application in social work practice.

221. Human Behavior and Social Environment II (3) II

Prerequisite: Social Work 220.

Dynamic concepts of the interplay of the physiological as related to emotional, social, and cultural factors. Basic knowledge from medicine, sociology, psychology, cultural anthropology, and religion for use by the social worker in assisting people in their social functioning.

222. Human Behavior and Social Environment III (2) I

Prerequisite: Social Work 221.

Extension of Social Work 220 and 221. Understanding of the bio-social reasons people are unable to function up to self and societal expectations, and the role of social work in affecting change.

230. Social Work Practice I (3) I
Prerequisite: Concurrent registration in Social Work 250.
Principles of social work practice with individuals, families, groups, and communities. Attention is given to social work objectives, principles and skills.

231. Social Work Practice II (2) II
Prerequisites: Social Work 230 and concurrent registration in Social Work 251.
Principles of social work practice with individuals, families, groups, and communities with emphasis on refinement of skills of social study and social problem analysis. Attention to interactional and small group processes in determination of goals and change.

232. Social Work Practice III (2) I
Prerequisites: Social Work 231 and concurrent registration in Social Work 252.
Analysis of social work intervention to motivate individuals, families, and groups toward change and problem solving. The implications for practice of the physical, social and emotional factors influencing people, and their interaction with social and economic groups of which they are a part.

233. Social Work Practice IV (2) II
Prerequisites: Social Work 232 and concurrent registration in Social Work 253.
Designed to offer opportunity for integration and application of the student's knowledge of an array of problem-solving methods in social work. Case material focuses on the specific content relevant to selected models of social problems experienced by individuals, families, and groups.

234. Social Work Practice V (2) I
Prerequisites: Social Work 231 and concurrent registration in Social Work 255.
Examination of applications of major theories of social change in organized behavior to improve the social environment. Use of selected model problems in social welfare planning; mobilization of resources; analysis of issues and resistances; designing programs and structures; and reassessment.

235. Social Work Practice VI (2) II
Prerequisites: Social Work 234 and concurrent registration in Social Work 256.
Exploration of collaborative social work role with other professional roles in planned institutional change. Differential applications of values, strategies, and power in social welfare and host settings, by and on behalf of various population groupings.

250. Field Instruction I (4) I
Prerequisite: Concurrent registration in Social Work 230.
Field instruction in a public or voluntary social work setting. Experiences are drawn upon in relation to classroom learning to emphasize application of social work objectives, principles and skills to services to individuals, families, groups, and communities.

251. Field Instruction II (4) II
Prerequisites: Social Work 250 and concurrent registration in Social Work 231.
Continuation of field instruction initiated in Social Work 250. Opportunities are provided for the application of social study and social problem analysis to experience with interactional and small group processes.

252. Field Instruction III: Individuals, Families, and Groups (4-6) I
Prerequisites: Social Work 251 and concurrent registration in Social Work 232.
Field instruction in a public or voluntary social work setting emphasizing a concentration on methods aimed at achieving change in or on behalf of individuals, families and groups representative of the social problem model or models of special interest to the student. Practice under educational direction at an advanced level.

253. Field Instruction IV: Individuals, Families, and Groups (4-6) II
Prerequisites: Social Work 252 and concurrent registration in Social Work 233.
Continuation of Field Instruction III at an advanced level. Emphasis is placed on the use of the array of problem-solving methods in social work.

255. Field Instruction V: Social Policies, Organizations, and Communities (4-6) I
Prerequisites: Social Work 251 and concurrent registration in Social Work 234.
Field instruction in a public or voluntary social work setting emphasizing a concentration on methods aimed at achieving changes in social policies, organizations and communities usually centered around the social problem model or models of special interest to the student. Practice under educational direction at an advanced level.

256. Field Instruction VI: Social Policies, Organizations and Communities (4-6) II
Prerequisites: Social Work 255 and concurrent registration in Social Work 235.
Continuation of Field Instruction V at an advanced level. Emphasis is placed on the implementation of change in social policies, organization and communities.

269. Supervision for Field Instructors I (2) I, II
Prerequisite: Consent of the Dean of the School of Social Work.
Designed for field instructors who will be teaching graduate students in selected field agencies. Objectives, content, and methods of instruction related to the administrative and educational functions of the field instructor in the education of social workers.

270. Seminar: Social Work Analysis (1) I
Discussion of student experience in field instruction and its broader implications.

271. Seminar: Current Social Issues (1) I, II
Prerequisite: Advancement to candidacy.
Current developments and issues in contemporary society and their meaning for social work practice.

273. Seminar: Corrections (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Programs dealing with juvenile and adult offenders with consideration of problems of incidence and prevention. Programs analyzed in regard to historical trends, legal base, and current issues, in a variety of settings.

274. Seminar: Services for the Aging (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Analysis of longevity and the aging in contemporary society. Includes nature of aging process, retirement, family relationships, housing, income maintenance, protective service, and social welfare resources. Knowledge and skills needed to do social work with older people.

275. Seminar: International Social Services (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
International social work goals, methods, and services. Discussion of common social welfare problems, issues, and significant developments; the role of international agencies; the role of the social worker.

276. Seminar: Social Services for Families and Children (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Analysis of programs offering social work services for families and children. Problems and issues in relating services to individual needs, community structure, values and resources; governmental and voluntary responsibilities and relationships, problems of administration; and the contribution of research.

277. Seminar: Community Development (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Community development particularly in rural areas in newly economically developing countries. The nature, basic elements, and principles of community development, organization and program development; personnel and training; operational problems and issues.

278. Seminar: Group-Serving Agencies (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Development of group-serving agencies and evolvement of methods used to achieve purposes. Types of programs and variety of professions and disciplines used to achieve purposes and programs. Comparison of structures, membership philosophies, and types of services.

279. Seminar: Medical Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Health and medical care programs concerned with prevention of illness, maintenance of health and/or treatment of illness and disability, governmental and nongovernmental programs, institutions, and agencies. Collaboration of the social worker with other members of the medical care team.

280. Seminar: Psychiatric Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Examination of services and programs designed to alleviate mental illness and restore mental health. Review of types and range of public and private programs and facilities. Role and function of the psychiatric social worker.

281. Seminar: School Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Role of the social worker in collaboration with teachers and principals and other school staff in diagnosis and treatment of problems which interfere with children making maximum use of educational experience.

282. Seminar: Social Work and the Law (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
Basic concepts of jurisprudence and the function of the legal system as part of the community. Discussion of the common-law system and the case precedent; structure and jurisdiction of courts, domestic relations, and criminal law. Specific aspects of law pertinent to social work orientation.

283. Seminar: Supervision in Social Work (2) I, II
Prerequisite: Advancement to candidacy or consent of the Dean.
The purpose, content, and methods of supervision with emphasis on the administrative and educational components of the supervisory process. Trends and issues in the practice of supervision and consultation.

284. Seminar: Social Work and Social Philosophy (2) I, II
Prerequisites: Advancement to candidacy or consent of the Dean.
Philosophical concepts relevant to the values, purposes, and goals of the profession of social work.

290. Methods of Social Research (2) I, II
Definition and purpose of research in social work. Techniques and methods used in collecting, organizing, and interpreting social welfare and related data; steps involved in planning a research project and selecting a research design.

297A-297B. Research (1-2) I, II
Prerequisite: Social Work 290.
Research in the field of social work and preparation of written report. Individual effort or group project.

298. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with Dean and instructor.
Individual study. Six units maximum credit.

SOCIOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Emeritus: Barnhart

Professors: Daniels, DeLora, Kirby, Klapp, Milne, Wendling

Associate Professors: Gillette, Johnson, C. D. (Chairman), Mouratides

Assistant Professors: Baker, A., Bower, Chandler, El-Assal, Hayes, Kennedy, W., O'Toole, Sorensen, G., Werner, Winslow

Lecturers: Fogel, Wade

Offered by the Department of Sociology

Master of Arts degree with a major in sociology. (See also Master of Arts degree for teaching service in social science. Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in sociology with the A.B. degree in liberal arts and sciences.

Minor in sociology.

SOCIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in sociology must complete a minor in another field.

Preparation for the major. Sociology 1, 10, and 60. (9 units.) Advanced students in junior and senior years entering the major may take Sociology 102 in place of Sociology 1, but may not use 102 to fulfill minimal upper division requirements in the sociology major.

Major. A minimum of 24 upper division units in sociology to include Sociology 101, 122, and 140.

SOCIOLOGY MINOR

The minor in sociology consists of from 15 to 22 units in sociology, nine units of which must be in upper division courses (except Sociology 102.)

LOWER DIVISION COURSES

1. Introductory Sociology (3) I, II

This course, or Sociology 102, is prerequisite to all upper division courses in sociology.

Development and use of the concepts applied to sociological analysis; the effects of isolation and social contacts, interaction, processes, forces, controls, collective behavior, and social progress. Not open to students with credit in Sociology 102.

10. Contemporary Social Problems (3) I, II

Prerequisite: Sociology 1.

Survey of modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. Not open to students with credit in Sociology 110.

35. Marriage and the Family (3) I, II

Analysis of dating, engagement, marriage and family relationships. The married couple as a small group viewed through contemporary sociological and social psychological principles and research findings. Factors predictive of marital behavior. Not open to students with credit in Home Economics 35, Social Welfare 35, or other course in marriage and the family, or in courtship and marriage.

60. Elementary Social Statistics (3) I, II
Prerequisites: Sociology 1 and Mathematics 3.
Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, trends, simple correlation, sampling and reliability techniques. Not open to students with credit for, or concurrent enrollment in, another course in statistics.

UPPER DIVISION COURSES

100. History of Social Thought (3) I, II
Prerequisite: Sociology 1 or 102.
The origin and development of social theory in Europe and America; consideration of the fields and specialization and research in contemporary American sociology.

101. Modern Social Theory (3) I, II
Prerequisite: Sociology 1 or 102.
A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers.

102. Principles of Sociology (3) I, II
Development and use of the concepts that are applied to sociological analysis. A more intensive introduction to sociology than given in Sociology 1. Not open to students with credit in Sociology 1. Sociology 102 may not be used to fulfill the minimal upper division requirements in the sociology major or minor or the special major.

110. Social Disorganization (3) I, II
Prerequisite: Sociology 1 or 102.
Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution, war, etc.

113. Criminology and Penology (3) I, II
Prerequisite: Sociology 1 or 102.
The extent and characteristics of crime; consideration of physical, mental, economic, and sociological causes of crime; study of methods of penal discipline, prison labor, parole, and probation; programs of prevention.

114. Juvenile Delinquency (3) I, II
Prerequisite: Sociology 1 or 102.
The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agenices.

116. Contemporary Correctional Administration (3) II
Prerequisite: Sociology 113 or 114.
A study of the problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails.

120. Industrial Sociology (3) I, II
Prerequisite: Sociology 1 or 102.
Analysis of group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

121. Medical Sociology (3) I
Prerequisite: Sociology 1 or 102.
A sociological analysis of health and medical institutions. Cultural factors in conceptions of disease, health, and healing. Social structure of medical facilities and the role of personnel in such institutions. Relation of illness to income, housing, and other socio-economic factors. Not open to students with credit in Health Education 181.

122. Social Organization (3) I, II
Prerequisite: Sociology 1 or 102.
Major forms of social organization such as institutions, associations, bureaucracy, primary groups, and stratification. Study of underlying processes of development, social control and organizational change.

123. The Sociology of Mental Illness (3) II
Prerequisite: Sociology 1 or 102.
The social definition, ecology, and control of mental illness across various societies. The implications of social differentiation, stratification, and urbanization upon the incidence, prevalence, and control of mental illness and the use of these empirical problems for sociological research.

124. Social Stratification (3) I, II
Prerequisite: Sociology 1 or 102.
Theories of stratification in society; studies in the American stratification system and its implications in the other areas of life. Introduction to the study of mobility. Comparison with other selected societies.

125. Minority Group Relations (3) I, II
Prerequisite: Sociology 1 or 102.
Theories of ethnic prejudice. Analysis of racial and ethnic discrimination. Analytical inquiry into sources of friction and causes of conflict between majority and minority groups. (Formerly entitled: Race Relations.)

132. Formal Organization (3) II
Prerequisites: Sociology 1 or 102, and 122.
The structure and dynamics of various types of complex formal organizations. Their development, internal structure and processes, external relations and function in contemporary society.

135. Dynamics of Family Development (3) II
Prerequisite: Sociology 1 or 102.
Analysis of the history of families; how they form, function, and grow to maturity. Focus on the development and interaction of family members throughout all stages of family life cycle from marriage to dissolution. (Not open to students with credit in another upper division course in marriage and the family.)

136. Sociology of the Family (3) II
Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.
A comparative study of family systems in different societies. Changing role-structure and functions of the modern family; rural-urban, social class, racial and ethnic differences in family organization; marriage and family as a developing system of interpersonal relationships.

137. Political Sociology (3) I
Prerequisites: Sociology 1 and 122.
Social organization of political processes. Power and authority, social class, primary groups, collective behavior, social change, and other sociological factors considered in their relationships to political processes.

138. Sociology of Religion (3) II
Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.
The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

140. Social-Psychological Foundations of Society (3) I, II
Prerequisites: Sociology 1 or 102 and Psychology 1.
The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Psychology 145.

146. Collective Behavior (3) I, II
Prerequisites: Sociology 1 or 102, and 140.
The basic processes of social behavior in masses and groups, including crowd behavior, fads, fashions, crazes, panics, rumors; sects and cults; heroes and scapegoats; social movements; effects of mass communication.

148. Small Groups (3) I
Prerequisites: Sociology 1 or 102, and 140.
Processes, morale and organization of small groups; their role in society and institutions such as industry, military, recreation and education; recent studies and methods of research

150. Population Problems (3) I
Prerequisite: Sociology 1 or 102.
Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

151. Research Methods in Demography (3) II
Prerequisites: Sociology 60 or Economics 2, and Sociology 150.
Standard procedures in the measurement of fertility, mortality, natural increase, migration, population growth and manpower, and working activities. Appraisal of source materials. Students to complete one project during term.

157. Urban Sociology (3) II
Prerequisite: Sociology 1 or 102.
A study of the structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required.

160. Quantitative Methods in Social Research (3) I
Prerequisite: Sociology 60.
The use of parametric and non-parametric techniques in the analysis of social research data; including analysis of variance; covariance; multiple and partial correlational techniques.

164. Methods of Social Research (3) I, II
Prerequisites: Sociology 1 or 102, and 60.
Research methods and interpretation used in the study of communities, institutions, and social conditions.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

197. Investigation and Report (3) I, II
Prerequisite: Fifteen units in sociology and consent of instructor.
Analysis of special topics in sociology. May be repeated for a maximum of six units credit.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar in Social Theory (3)
Prerequisites: Sociology 101 and 164.
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report findings. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

210. Seminar in Social Disorganization (3)
Prerequisites: Sociology 110 and 164.
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urbanization, secularization and social change, to these processes, with emphasis on contemporary theory and research. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

220. Seminar in Social Organization (3)
Prerequisite: Sociology 164.
Analysis of the principal organizational forms of society and groups, in terms of their basic patterns, interrelations, organizational change, and the relation of the individual to social structure. Study of bureaucracy, consensus, formal and informal structure and function. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

230. Seminar in Social Institutions (3)
Prerequisite: Sociology 164.
Advanced study of institutional forms and processes, including the institutional bases of social mores. The effect of sociological factors, including cultural lag, on contemporary social institutions. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

240. Seminar in Social Interaction (3)
Prerequisites: Sociology 140 and 164.
Advanced study of social-pyschological interaction, including sociological factors in personality development and analysis of morale, motivation, leadership and other elements of group behavior. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

250. Seminar in Human Ecology and Demography (3)
Prerequisites: Sociology 150 and 164.
Analysis of the sociological variables which influence distribution and composition of populations and social institutions, with special emphasis on urban social organization. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

260. Seminar in Research Methods (3)
Prerequisites: Sociology 101 and 164.
Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types of projects. Evaluation of research in progress by members of the seminar. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

297. Research (3)
Prerequisite: Sociology 164.
Independent investigation of special topics.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPANISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus: Brown, L. P., Phillips

Professor: Baker

Associate Professors: Case (Chairman, Spanish-Portuguese), Lemus, Walsh, Williams

Assistant Professors: Bas, Eide, Fornoff, Gardner, Head, Segade, Sender, Smith

Offered by the Department of Spanish and Portuguese

Master of Arts degree with a major in Spanish. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in Spanish with the A.B. degree in liberal arts and sciences.

Teaching major in Spanish with specialization in both elementary and secondary teaching.

Minor in Spanish.

Teaching minor in Spanish with specialization in both elementary and secondary teaching.

SPANISH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog.

Students majoring in Spanish must complete a minor in another field approved by the departmental adviser in Spanish.

Preparation for the major. Spanish 1, 2, 3, 4, 10, and 11. (20 units.)

Major. A minimum of 24 upper division units in Spanish to include Spanish 101A-101B, 102A-102B, and 12 units of courses in the period literature of the language.

SPANISH MINOR

The minor in Spanish consists of from 15 to 22 units in Spanish, six units of which must be in upper division courses.

SPANISH MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major, with specialization in either elementary or secondary teaching, may be used by students in Teacher Education as an undergraduate major for the A.B. degree in liberal arts and sciences.

Specialization in Elementary Teaching

Preparation for the major. Spanish 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major. Twenty-four upper division units to include Spanish 101A, 101B, 102A, 102B, 122, 140, 141, 150, and three upper division units of electives in Spanish. In addition to the major, credential candidates must complete Education 136.

Specialization in Secondary Teaching

Preparation for the major. Spanish 1, 2, 3, 4 (or equivalents), 10, and 11. (20 units.)

Teaching Major (Undergraduate). A minimum of 24 upper division units in Spanish to include Spanish 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of Spanish in the period literature of the language.

Postgraduate Year. Six units of graduate courses in Spanish.

SPANISH MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Elementary Teaching

The minor in Spanish for elementary teaching consists of not less than 20 units in Spanish, six units of which must be in upper division courses.

Specialization in Secondary Teaching

The minor in Spanish for secondary teaching consists of a minimum of 20 units in Spanish exclusive of course equivalents, to include in the lower division, Spanish 1, 2, 3, 4, 10, and 11 (or equivalents); and in the upper division, Spanish 101A, 101B, 102A, 102B, and 122.

HIGH SCHOOL EQUIVALENTS

High school foreign language courses may be used for purposes of placement in college courses and may be counted toward meeting the foreign language requirement in various majors. These high school courses will not count as college credit toward graduation.

The first two years of high school Spanish may be counted as the equivalent of Spanish 1; three years the equivalent of Spanish 2; and four years the equivalent of Spanish 3. The last year-course taken by a student in the high school language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work. Students entering San Diego State College with five or six years of high school Spanish may enroll in Spanish 4; the department recommends, however, that they take Spanish 21, 22, or 23.

LOWER DIVISION COURSES

1. Elementary (4) I, II

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Spanish culture and civilization, minimum essentials of grammar.

2. Elementary (4) I, II

Four lectures and one hour of laboratory.

Prerequisite: Spanish 1 or two years of high school Spanish.

Continuation of Spanish 1.

3. Intermediate (4) I, II

Prerequisite: Spanish 2 or three years of high school Spanish.

A practical application of the fundamental principles of grammar. Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4) I, II

Prerequisite: Spanish 3 or four years of high school Spanish.

Continuation of Spanish 3.

10. Conversation (2) I, II

Prerequisite: Spanish 2 or three years of high school Spanish.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) I, II

Prerequisite: Spanish 10 or Spanish 3, or four years of high school Spanish.

Continuation of Spanish 10.

21. Intermediate Oral and Written Composition (3)
Prerequisites: Spanish 4 and 11.
Directed written composition with stress on current usage. Oral reports on assigned topics.

22. Introduction to Syntax and Style (3)
Prerequisites: Spanish 4 and 11.
Study of structure and idiomatic usage. Analysis of style based on passages chosen from modern literature.

23. Introduction to Literature (3)
Prerequisites: Spanish 4 and 11.
Selected readings from Peninsular and Latin American prose. Oral and written reports and class discussions. Course conducted in Spanish.

40. Spanish Civilization (2) I
No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, and philosophy.

41. Spanish-American Civilization (2) II
No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: Spanish 4 and 11. with a grade of C or better.
Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice on colloquial Spanish with extensive use of phonograph recordings.

102A-102B. Survey Course in Spanish Literature (3-3)
Prerequisite: Spanish 4 with a grade of C or better.
A study of important movements, authors, and works in Spanish literature from the Middle Ages to the present.

104A-104B. Spanish-American Literature (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports.

105A-105B. Modern Spanish Drama (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the drama of Spain from the beginning of the nineteenth century to the present time.

106A-106B. Mexican Literature (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
Aspects of Mexican culture. The first semester, a rapid survey of Mexican literature from the colonial period to the twentieth century. The second semester, the twentieth century, with emphasis on the contemporary Mexican novel and theater.

110. Nineteenth Century Spanish Novel and Short Story (3)
Prerequisites: Spanish 4 and 11.
The development of the novel and short story in Spain in the nineteenth century.

111. Twentieth Century Spanish Novel and Short Story (3)
Prerequisites: Spanish 4 and 11.
The development of the novel and short story in Spain to 1936, with emphasis on the novel of the generation of 1898.

112. Contemporary Spanish Novel (3)
Prerequisites: Spanish 4 and 11.
The development of the novel and short story in Spain since 1936.

122. The Foreign Language Laboratory (2)
Conducted in English.
Prerequisite: Admission to Teacher Education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, Italian, or Russian 122. To be taken concurrently with Education 121E.

130. Poetry of the Spanish Golden Age (3)
Prerequisites: Spanish 4 and 11.
Major poets of the Siglo de Oro.

131. Prose of the Spanish Golden Age (3)
Prerequisites: Spanish 4 and 11.
Major prose writers of the Siglo de Oro.

132. Drama of the Spanish Golden Age (3)
Prerequisites: Spanish 4 and 11.
The major dramatists of the Siglo de Oro.

140. Spanish Civilization (2) I
No prerequisite.
An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy. and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. Spanish-American Civilization (2) II
No prerequisite.
An advanced course in Spanish-American culture. From the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

150. Phonetics and Phonemics (3) II
Prerequisites: Spanish 4 and 11 with a grade of C or better.
Detailed analysis of the sounds of Spanish and of the Spanish phonemic system, with special attention to the problems involved in the teaching of Spanish pronunciation to English-speaking students.

166. Honors Course (Credit to be arranged) I, II
Refer to Honors Program.

190. Advanced Grammar (3)
Prerequisites: Spanish 101A and 101B.
Significant systematic features of modern Spanish grammar with analysis of passages from literature. Recommended for credential applicants.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Spanish available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. History of the Spanish Language (3)
Prerequisite: 18 units of upper division Spanish, including credit or concurrent enrollment in Spanish 150.

The development of the Spanish language in Spain and Spanish America, with particular attention to the phonology, morphology, and syntax of medieval Spanish. (Formerly entitled: Old Spanish.)

202. Cervantes (3)
Prerequisite: 18 units of upper division Spanish.
A study of the principal prose works of Cervantes: The *Novelas ejemplares* and *Don Quixote.*

203. Lope de Vega (3)
Prerequisite: 18 units of upper division Spanish.
The development and importance of Lope de Vega and his school, concentrating on the historical plays and dramas of *capa y espada.*

204. The Spanish-American Novel (3)
Prerequisite: 18 units of upper division Spanish.
A study of some aspect of the Spanish-American novel.

205. The Gaucho Epic (3)
Prerequisite: 18 units of upper division Spanish.
The *Poesía gauchesca*, with particular emphasis on *Martín Fierro*, *Fausto*, and *Santos Vega.* (Formerly entitled: Spanish-American Poetry.)

206. Modernism (3)
Prerequisite: 18 units of upper division Spanish.
The *Modernista* movement in Spanish America, with special attention to representative poets.

207. Medieval Spanish Literature (3)
Prerequisite: Spanish 201.
The literature of Spain from the earliest extant works to the *Celestina.*

208. The Modern Spanish Essay (3)
Prerequisite: 18 units of upper division Spanish.
The thinkers, essayists, and philosophers of Spain from the generation of 1898 to the present.

209. The Spanish-American Essay (3)
Prerequisite: 18 units of upper division Spanish.
Principal Spanish-American essayists of the 19th and 20th centuries.

290. Research and Bibliography (3)
Prerequisite: 18 units of upper division Spanish.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division Spanish and consent of graduate adviser and department chairman.
A study of important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division Spanish and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPEECH ARTS

IN THE DIVISION OF THE FINE ARTS

Faculty

Professors: Ackley, Adams, W., Benjamin (Chairman), Earnest, Jones, K., Mills, Pfaff, Povenmire, Powell, Sellman

Associate Professors: Amble, Lee, R., Riedman, Samovar, Stephenson

Assistant Professors: Anderson, H., Hansen, Harris, R., Jameson, Johnson, E., Johnson, J., Madsen, Mattox, Meador, Nichols, Rogers, P., Sanders, Thile, Wylie

Offered by the Department

Master of Arts degree with a major in speech arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in speech arts with the A.B. degree in applied arts and sciences.

Major in radio and television broadcasting with the B.S. degree in applied arts and sciences.

Minor in speech arts and minor in radio and television broadcasting.

Teaching major in speech arts with specialization in secondary teaching.

Teaching majors in fine arts, fine arts and humanities, and fine arts and social sciences allowing a concentration in speech arts, are also offered. (See the section of this catalog on the School of Education.)

Teaching minor in speech arts with specialization in both elementary and secondary teaching.

SPEECH ARTS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

The major in speech arts is available in four areas of emphasis: Broadcasting, Public Address-Communication, Speech and Hearing Pathology, and Theatre, including Design for Theatre and Design for Television. Students planning to take the Standard Teaching Credential—Secondary may use the teaching major in speech arts as a major in speech arts for the A.B. degree in lieu of one of the areas of emphasis.

MAJOR WITH EMPHASIS IN BROADCASTING

Students emphasizing broadcasting in the speech arts major must complete a minor of 15 units which brings to him an academic content field in another discipline.

Preparation for the major. Speech Arts 67, 80, 81, 82, 83, and 85. (18 units.) Students electing this emphasis will substitute Speech Arts 1 for the general education requirement Speech Arts 3.

Major. Twenty-five units consisting of Speech Arts 100, 154A, 154B, 167, 181, 183, 186, and 188.

MAJOR WITH EMPHASIS IN PUBLIC ADDRESS-COMMUNICATION

A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 11A or 11B, 60A, 62, and one unit each of 61 and 64. (11 units.) Students electing this emphasis may take Speech Arts 4 as part of the general education requirements.

Major. Twenty-five upper division units to include Speech Arts 100, 101, 130, 162, 190, 191, 192A, 192B, and three units of electives.

MAJOR WITH EMPHASIS IN SPEECH AND HEARING PATHOLOGY

A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 1, 70, and 3 units selected from Speech Arts 4, 11A, 11B, 60A, 60B. (9 units.)

Major. A minimum of 24 units selected with the approval of the adviser from the following courses: Speech Arts 100, 109 (Speech Correction), 170, 171A, 171B, 172, 173, 174, 176, 177, 178, 179A, 179B, 180A, 180B.

MAJOR WITH EMPHASIS IN THEATRE

A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 8, 55A, 56, and 55B or 11A, and one lower division course in broadcasting. (15 units.) Speech Arts 1 or 4 will be substituted for Speech Arts 3, and students electing this emphasis will take Speech Arts 5 as part of general education.

Major. Twenty-four upper division units in speech arts to include Speech Arts 100, 118A, 154A, 155, 159, and 9 units from Speech Arts 108, 116, 118B, 140A, 140B, 145, 152, 154B, 156, 160, and 163. In addition to course requirements, the student must participate in a minimum of five Major Theatre performances and three Studio Theatre activities.

MAJOR WITH EMPHASIS IN DESIGN FOR THEATRE

A minor is not required with the speech arts major with this emphasis for the degree.

Preparation for the major. Speech Arts 5, 8, 55A or 55B, 56, and 81. (15 units.) Students electing this emphasis will substitute Speech Arts 1 for Speech Arts 3.

Major. Twenty-four upper division units in speech arts to include Speech Arts 100, 140A, 140B, 145, 152, 154A, 154B, and 159. In addition to course requirements, the student must participate in a minimum of five Major Theatre performances and three Studio Theatre activities.

MAJOR WITH EMPHASIS IN DESIGN FOR TELEVISION

A minor is not required with this major.

Preparation for the major. Speech Arts 8, 56, 81, 83, and 86. (15 units.)

Major. Twenty-four upper division units in speech arts to include 140A, 140B, 145, 156, 159, 160, 182, and 184.

RADIO AND TELEVISION BROADCASTING MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

This major in radio and television broadcasting is offered by the Speech Arts Department.

The purpose of the curriculum in broadcasting is three-fold: to provide the student with the theory and scholarly background for a thorough understanding of all aspects of the broadcasting profession and contributing fields; to encourage the student to develop a philosophy of broadcasting based upon the liberal arts, and a grasp of the role of mass media in today's society; and to provide training and experience in all phases of radio, television and film performance, production, management, and general operations. This includes practical assignments in radio, through the college-operated KEBS-FM; production for television stations, including KEBS-TV, the college-operated educational television station; closed circuit television programing; and practical film responsibilities.

A minor is not required with this major.

Preparation for the major. Speech Arts 56, 80, 81, 82, 83, and 85. (18 units.) Students taking the B.S. degree with a major in Broadcasting will substitute Speech Arts 1 for the general education requirement Speech Arts 3. Demonstration of proficiency in typing is required.

Speech Arts

Major. A minimum of 36 upper division units distributed as follows: Speech Arts 120 or 181, 159, 167, 182, 183, 184, 186, 187, 188; and 6–7 units from one of the following nine allied professional sequences: (playwriting) Speech Arts 118A, 118B; (scene design) Speech Arts 140A, 140B; (film) Speech Arts 67, 168; (news) Journalism 124A, 124B, 132; (mass media) Journalism 122, 132; (education) Education 101, 111, Speech Arts 185; (art) Art 107, 114A, 114B; (music) Music 51, 151; or (administration) Business Administration 150, 153.

SPEECH ARTS MINOR

The minor in speech arts consists of from 15 to 22 units in speech arts, nine units of which must be in upper division courses. The courses must be selected from one of the following fields of emphasis: theatre, design for theatre, design for television, broadcasting, public address-communication, or speech and hearing pathology.

RADIO AND TELEVISION BROADCASTING MINOR

The minor in radio and television broadcasting is offered by the Speech Arts Department. The minor consists of a minimum of 15 to 22 units (to include Speech Arts 80 and 81), at least six of which must be in upper division courses.

SPEECH ARTS MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

All candidates for a teaching credential must complete all requirements for the applicable specialization as outlined in the section of this catalog on the School of Education.

This major may be used by students in Teacher Education as an undergraduate major in speech arts for the A.B. degree in applied arts and sciences.

Specialization in Secondary Teaching

This major is currently under revision. See the departmental adviser for teaching programs.

SPEECH ARTS MINOR

FOR THE STANDARD TEACHING CREDENTIAL

Students in Teacher Education using this teaching minor for the bachelor's degree will be graduated with a minor in speech arts.

Specialization in Elementary Teaching

The minor in speech arts for elementary teaching consists of 25 units to be selected with approval of the departmental adviser in speech.

Specialization in Secondary Teaching

The minor in speech arts for secondary teaching consists of 25 units to be selected with approval of the departmental adviser. If the major is non-academic, at least 12 upper division units of speech arts must be taken.

LOWER DIVISION COURSES

1. Voice and Diction (3) I, II

Exercises and drills to improve the quality, flexibility and effectiveness of the speaking voice leading to good usage in standard American speech. Preparatory to further courses in public speaking and dramatic art.

1-X. Speech for International Students (3)

Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communications. Emphasis on clarity and intelligibility. Practical work in aural comprehension. Prerequisite: Designation by speech testing committee. As a substitute for Speech Arts 3 or 4, this course will meet the general education requirement in oral communication.

2. Oral Communication Laboratory (1) I, II
Two hours of laboratory.

Those who fail the speech test should take this course concurrently with Speech Arts 3. This course provides training in articulation, voice control, vocabulary. Individual laboratory assistance on specific speech problems.

3. Oral Communication (2-3) I, II
Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining; principles of attention and delivery; practice in construction and delivery of various forms of speeches. Speech Arts 3 (or 4) required in general education.

4. Intermediate Public Speaking (3) I, II
Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery. Speech Arts 4 (or 3) required in general education.

5. Introduction to the Theatre (3) I, II
A survey of theory and practice in the contemporary theatre, including its literary, critical, and technical aspects viewed against historical backgrounds. Attendance at selected rehearsals and performances required.

8. Elementary Stage Costume and Makeup (3) I
Two hours lecture-demonstration and three hours activity.

Principles and application of makeup for stage and television. Pattern drafting, draping, color harmony and use of fabrics for stage costuming. Practical training in the construction of stage costumes and application of makeup for departmental productions.

11A. Fundamentals of Interpretation (3) I
Application of the principles involved in "making words come alive": response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose. Offered as demand requires.

11B. Intermediate Interpretation (3)
Prerequisite: Speech Arts 11A or 55A.

Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse.

44S. Workshop in Educational Radio Broadcasting (6) Summer (9 Weeks)
Practice and theory in educational radio broadcasting operations, to include program planning, staff administration, and announcing. Students in the workshop will function in staff duties for KEBS (FM). Offered jointly with Speech Arts 144-S. Not open to students with credit for Speech Arts 144S.

55A. Elementary Acting (3) I, II
Three lectures per week and an additional 32 hours of laboratory per semester.

Development of the individual's ability to express thought and emotion through the effective use of the voice and body. These fundamental skills may be applied to stage, radio, and television acting.

55B. Intermediate Acting (3) I, II
Three lecture-demonstrations per week and an additional 32 hours of laboratory per semester.

Prerequisite: Speech Arts 55A.

Continuation of 55A, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

56. Dramatic Production (3) I, II
Two lectures and three hours of laboratory.

Technical practices and organization of production for theatre and television. Practice in drafting and construction of scenery for the college productions.

57. Sound in the Theatre (2) I

One lecture and three hours of laboratory.

Techniques, theory, and procedures necessary to develop sound, music, and effects integrated into theatre production.

60A-60B. Argumentation and Debate (3-3)

Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional.

61. Intercollegiate Debate (1) I, II

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

62. Interpersonal Communication (3)

Prerequisites: Speech Arts 3 or 4.

Principles and application of interpersonal communication. Special emphasis on listening, interviewing, group dynamics, serial transmission, feedback and general semantics.

63. Verse Choir (2) I, II

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and readings on the nature, artistic function and history of the Verse Choir. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

64. Principles of Parliamentary Procedure (1) I, II

A study of the rules which govern discussion and procedures in organized assemblies. The class will be arranged as a parliamentary body to afford practice in the application of the rules.

67. Cinema as Art and Communication (3) I, II

Prerequisite: Sophomore standing.

An appreciative survey of cinema, with emphasis upon the feature film and the documentary. Historical and stylistic influences upon the aesthetic values and social implications of cinema. Illustrated by screen examples.

70. Survey of Speech and Hearing Disorders (3) I

Introduction to concepts and principles basic to the fields of speech and hearing disorders. Twenty-five hours of observation or project required.

79. Broadcast Writing (3) I, II

Two lectures and three hours scheduled activities.

Theory and practice in writing materials for oral presentation. Problems of timing and pacing, conversational expression, and word color.

80. Backgrounds in Broadcasting (3) I, II

Theory and operation of the broadcasting industry to include the history and regulation of broadcasting in the U.S., the social and economic setting of American broadcasting and the organization of commercial and educational radio and television stations.

81. Technical Operations for Broadcasting (3) I, II

Two lectures and three hours of scheduled activity.

Control room and studio techniques necessary for radio and television operation. Includes camera operation, video control, television lighting, television recording, and operation of audio equipment.

82. Radio Production (3) I, II

Prerequisite: Speech Arts 81.

Theory and practice in radio production.

83. Television Production and Directing (3) I, II
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Theory and practice in the skills and knowledge of television production. Includes basic program types, responsibilities of director, and director's relationships to production staff.

85. Introduction to Photography (3) I, II
(Same course as Industrial Arts 85.)
One lecture and six hours of laboratory.
A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 50.

86. Broadcasting Activities for Schools (3) I
Two lectures and three hours of scheduled activity.
The planning and production of radio and television broadcasts. Designed for students interested in handling broadcast activities in speech and drama classes and workshops for high schools and junior colleges. Not open to students with credit in Speech Arts 80.

88. Broadcast and Film Performance (3) I, II
Two lectures and three hours scheduled activities.
Prerequisites: Speech Arts 1 or 11A, and 55A.
Preparation and delivery of materials before the microphone and camera.

UPPER DIVISION COURSES

100. Phonetics (3) I, II
Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a corrective course in pronunciation and articulation. Required of speech majors and those seeking to teach exceptional children in the area of speech correction and lip reading.

101. Management of Speech Arts Activities (1) I, II
Planning, preparation, management and supervision of speech and drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the speech arts staff. May be repeated for a maximum of two units.

108. Advanced Interpretation (3) I, II
Prerequisite: Speech Arts 11A or 11B.
Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artist as they affect the interpretative artist.

109. Workshop in Speech (1 to 3)
Study of some problem in theater, public address, radio and television, or speech and hearing pathology. Maximum credit six units.

110. Creative Dramatics (2) I, II
Practical training in the principles and techniques of creative dramatization for work with children in the classroom and recreation. Emphasis on the development of the child emotionally and socially through dramatic improvisation.

116. Theatre Criticism (3)
Prerequisites: Speech Arts 5 and 118A.
A consideration of the problems and practices of dramatic criticism as applied to theatrical production in the past and present.

118A. Play Analysis (3) I, II
The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed.

118B. Playwriting (3) II
Lectures, discussion and reading of one-act plays written by the students.

120. Regulation of Broadcasting (3) I, II
Prerequisites: Speech Arts 80, 81, 82, and 83.
Responsibilities of broadcasters as prescribed by law, governmental policies and regulations, and significant court decisions.

121. International Broadcasting (3) II
Prerequisite: Speech Arts 120.
Comparative study of broadcasting in various world areas; economic, social, and political determinants of broadcasting patterns.

130. Semantics (3) I, II
Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

135. Theories of Human Communication (3) I, II
Prerequisite: Six units of speech arts.
Special emphasis on various communication theories and models; the relationship of mental variables such as perception, roles and status, behavior change, language and motivation to the entire communication process.

140A-140B. Scene Design for Stage and Television (3-3) I, II
Prerequisite: Speech Arts 56.
The application of the principles of design, color and perspective to the designing of various types of dramatic productions; the history of stage design. Students will learn to make sketches and models and paint scenery for departmental stage and television productions.

142. Theatre Workshop (2) I, II, Summer (3 or 6)
Two hours of activity per unit.
A laboratory to give the student a variety of experience in the theatre including acting, lighting, scenery, costumes and stage management. May be repeated for a maximum of six units.

143-S. Workshop in Educational Television (6) Summer
(Same course as Education 143-S)
Open to teachers and students interested in instruction by television.
The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

144-S. Workshop in Educational Radio Broadcasting (6) Summer (9 weeks)
Practice and theory in educational radio broadcasting operation to include program planning, staff administration, and announcing. Students in this workshop will function in staff duties for KEBS (FM). Offered jointly with Speech Arts 44-S. Not open to students with credit for Speech Arts 44-S.

145. Stage and Television Lighting (3) I, II
Two lectures and three hours of laboratory.
Principles and practice of light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays and television.

146. Radio Programing (3) II
Prerequisites: Speech Arts 80 and 82.
Formats, policies, production practices, and research in modern programing.

147. Broadcast Advertising (3) I
Prerequisite: Consent of instructor,
Theory, procedures, and functions of broadcast advertising, including marketing and media research, campaign planning, media strategy, time purchasing, and evaluation.

152. History and Design of Costume (Stage) (3) II

Two hours lecture-demonstration and three hours of laboratory.

A study of costume from Egyptian period to the present. Emphasis on the use of historical costumes on the stage. Costume designs for one stage production. Drawing and painting experience desirable but not necessary.

153. Advanced Acting Theory (3) I

Prerequisite: Speech Arts 55A or 55B.

An advanced study of the theories and principles of acting.

154A-154B. History of the Theatre (3-3) I, II

A study of the theatre from primitive times to the present. Special attention will be given to the theatre as a mirror of the social and cultural background of the various countries and periods in which it is studied. (Speech Arts 154B may be taken without 154A.)

155. Advanced Acting (3) II

Prerequisites: Speech Arts 55A and 55B.

Problems in characterization: acting styles of the Elizabethan and Eighteenth Century period.

156. Advanced Dramatic Production (3)

Two lectures and three hours of laboratory.

Prerequisite: Speech Arts 56.

Further study of scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions.

159. Stage Direction (3) I, II

Planned for prospective directors of plays in schools, colleges and community theatres. Through lectures, discussions, and exercise projects the student will become acquainted with the principles, procedures and methods of stage direction.

160. Stage Direction Laboratory (1) I, II

Prerequisite: Credit or concurrent registration in Speech Arts 159.

This will consist of experience in directing a one-act play before a departmental or public audience. May be repeated for a total of two units.

161. Intercollegiate Debate (1) I, II

Three hours of activity and two coaching hours to be assigned. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

162. Advanced Argumentation (3) I

A study of the approaches to argument and the patterns and problems in argument. Consideration of implications for society. Written and oral reports.

163. Advanced Verse Choir (2) I, II

Three hours.

Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and reading on the nature, artistic function and history of the Verse Choir, with a written report or project. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

164. Verse Choir Directing (2 or 3)

Organizing a given group as a Verse Choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration and practice of techniques to improve speech through the Verse Choir.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

167. Film Techniques (3) I

Prerequisite: Speech Arts 85.

Principles of film theory, cinematography, film editing; use of motion picture equipment. Technique and theory as they apply to the several filmic forms. Preparation of filmed materials.

168. Film Production (4) II

One lecture and nine hours of scheduled activity.

Prerequisites: Speech Arts 85 and 167.

An advanced practicum in film production. Studio and location work in the preparation of filmed materials, and complete non-theatrical films.

169. Education of Hearing Impaired Children (3) I, II

Prerequisites: Speech Arts 171A and 178.

Educational programs, services and resources for hearing impaired; historical background, philosophy, sociological and psychological problems.

170. Speech Development (3) I

Prerequisite: Speech Arts 70.

Development of normal speech in children; typical and common speech defects in preschool and school children; basic techniques for their prevention and correction. Twenty-five hours of observation or project required.

171A. Audiometry (3) I

Prerequisite: Psychology 50.

Anatomy and physiology of the human ear, theories of hearing, physics of sound, medical aspects, pathology and surgery of the ear, survey of current audiometric techniques.

171B. Audiometry (3) II

Prerequisite: Speech Arts 171A.

Tuning fork assessment, pure tone screening techniques, play audiometry, speech audiometry, and hearing aid evaluation. Meets audiometric certification requirement.

172. Mechanics of Speech Production (3)

Two lectures and two hours of laboratory.

Prerequisite: Psychology 50.

Functional anatomy of head, neck and thorax including laboratory exercises and demonstrations of charts, models, histological materials and cadavers.

173. Functional Problems of Speech and Hearing (3)

Prerequisite: Speech Arts 170.

Phenomena of human communication; relation between disorders of personality and difficulties in communication.

174. Principles and Methods of Speech Correction (3) I

(Same course as Education 174)

Prerequisites: Speech Arts 100 and 170.

Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

175. Hearing Amplification (3)

Prerequisites: Speech Arts 171A and 171B.

Specific application of amplification for rehabilitation of the impaired hearing mechanism; devices, methods for their evaluation, historical perspective and practical considerations.

176. Stuttering and Neurological Disorders (3) II

(Same course as Education 176)

Prerequisites: Speech Arts 100 and 170.

Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiology (3) I
Prerequisite: Speech Arts 171.
Diagnostic and predictive tests of auditory functioning; types and characteristics of hearing aids; clinical practice.

178. The Teaching of Lipreading (3) II
(Same course as Education 178)
Prerequisite: Speech Arts 171 or Education 177.
History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

179A. Clinical Methods in Speech Correction (2) I
Lectures, discussions, demonstrations of case history taking, speech and auditory discrimination tests, interviews, reporting, and parent and teacher counseling.

179B. Clinical Methods in Speech Correction (2) II
Practical experience in the above. Practicum 4 hours.

180A. Field Work in Clinical Practice in Speech Correction (1 or 2) I, II, Summer
Prerequisites: Speech Arts 100, 170, 174, and 176.
Supervised work with representative speech problems; "staffing" of cases; speech testing; record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

180B. Field Work in Clinical Practice in Hearing Problems (1 or 2) I, II, Summer
Prerequisites: Speech Arts 171, 177, and 178.
Supervised work with pure tone and speech audiometric testing of all ages; hearing therapy, "staffing" of cases, record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

181. Broadcast Management (3) I, II
Prerequisites: Speech Arts, 80, 81, 82, and 83.
Administration and organization of radio and television, including radio and television as advertising media, broadcasting research, station organization, promotion and sales, and current developments in radio and television as mass media.

182. Advanced Lighting and Staging for Television (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56, 81, and 85.
Production elements of television and film, to include lighting and staging techniques, art and graphics, scene design and scene decoration. Experience in various technical and production specialties of television and film.

183. Advanced Programing and Development for Television (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 79, 80, 81, 83, 186 and consent of instructor.
The development of program ideas into formats for television productions of all types. Experience in developing and producing programs for CCTV and ETV.

184. Advanced Television Directing (4) I, II
One lecture and nine hours of scheduled activity.
Prerequisites: Speech Arts 56 or 79, 80, 81, 83, 85, 159, and 167.
Direction and production of television programs; presentational techniques and individual projects.

185. Educational Broadcasting (3) II
Prerequisites: Speech Arts 80 and Education 101.
The role of educational broadcasting in the United States: social and educational impact of noncommercial radio and television; introduction to production techniques for instructional television; and procedures for the utilization of television in the classroom.

186. Writing and Producing for Broadcasting and Film (3) II
Prerequisites: Speech Arts 79, 80, 81, and 82 or 83.
Scripting of dramatic and documentary forms, to include the development of original materials and adaptations for the broadcast media and film, as well as problems in the post-writing process of preparing scripts for production, and the development of program and series ideas.

187. Radio and Television News (3) I, II
(Same course as Journalism 104)
Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures and kinescopes; filming, editing and scripting news on motion pictures; using recorders to report special events.

188. Senior Project in Broadcasting (3) I, II
Limited to students with the major in Radio and Television Broadcasting, leading to the B.S. degree.
Student must demonstrate proficiency in a phase of broadcasting from development of a program idea through production for either radio, television, or film. A research paper may be substituted at the discretion of the adviser if the project chosen does not involve production.

189. The International Cinema (3) I
Prerequisite: Speech Arts 67.
Foreign feature films as expressions of national attitudes and ideologies. Screenings and analyses.

190. Rhetorical Theory (3) I, II
An analysis of rhetorical theory with special attention to Plato, Aristotle, Cicero, Quintilian. Cox. Wilson, Blair. Campbell, Whately, Bain, and modern authors on public speaking. The development of a theory and rhetorical criticism, culminating in a critical evaluation of contemporary public address.

191. Organized Discussion (3) I, II
The role of group discussion in a democratic society. Principles and methods of group discussion in problem solving and learning situations. Practice in dealing with questions of policy and controversial issues. Development of skills in discussion preparation, participation and leadership.

192A. Advanced Public Speaking (3) I
Prerequisite: Speech Arts 4.
Emphasis upon the preparation and delivery of longer speeches. Study of classic models of public address.

192B. Oral Persuasion (3) II
Prerequisite: Speech Arts 4.
A study of oral persuasion with an emphasis on motivation and the evaluation of persuasive techniques. Research project on a significant current problem. Results of research and persuasive principles used in actual speech.

193. Mass Persuasion (3) I, II
Prerequisite: Speech Arts 4.
An historical and critical analysis of the theories, techniques and ethics of oral communicators who employ radio and television as a means of presenting social, political and religious issues.

194. History of Public Address (3) II
Prerequisite: Speech Arts 4.
Speakers and speaking from Ancient Greece to the present. Functions of public speaking in the growth and development of ideas, ideals, and institutions.

195. Rhetorical Criticism (3) II
Prerequisite: Speech Arts 190.
Principal philosophies of speech criticism. Formulation of standards for critical judgment. Experience in analyzing, interpreting, and evaluating speeches.

198. Selected Topics in Speech Arts (1-3) I, II
Prerequisite: Twelve units in speech arts.
A specialized study of selected topics from the areas of speech arts. May be repeated for additional credit with new subject matter for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSES

Lower Division

X-6. Speech Workshop for Stutterers (3)
Participation by stutterers in various techniques designed to alleviate stuttering blocks. May be repeated to a maximum of six units.

Upper Division

X-175. The Role of Parents in Problems of Speech Correction (2) (Extension)
Assistance to parents in understanding the speech-handicapped child. Open to parents of children with a speech problem. May be repeated for a total of four units.

GRADUATE COURSES

200. Research and Bibliography (3)
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research as it relates to the various areas of speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.

208. Seminar in Oral Interpretation (3)
Prerequisite: Speech Arts 108.
Aesthetic discipline applied to oral interpretation of various forms of literature. Analysis of thought and emotional content, and aesthetic form. Investigation of advanced problems of delivery. May be repeated once with new content for maximum of six units.

243. Seminar in Staging Practices for Theatre and Television (3)
An investigation of the recent developments of modern staging facilities. The application of technological advances and electro-mechanical devices to the scenic arts for theatre and television.

244. Seminar in Stage Direction (3)
Prerequisite: Speech Arts 159.
Projects in the aesthetic principles and the practices of stage direction with an emphasis on styles and historical periods.

245. Seminar in Lighting for Stage and Television (3)
Prerequisite: Speech Arts 145.
Projects concerned with the aesthetic and the technical problems of lighting in stage and television.

246. Seminar in Design for Stage and Television (3)
The principles of design in the theatre with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. Each section may be taken once for credit.

A. Costume Design
  Prerequisite: Speech Arts 152.
B. Scenery Design
  Prerequisites: Speech Arts 140A, 140B, and 156.

247. Seminar in History of Theatre and Drama (3)
Prerequisites: Speech Arts 154A, 154B, and 118A.
Each section may be taken once for credit.
A. British and Continental Theatre
B. American Theatre

262. Seminar in Argumentation (3)
Prerequisite: Speech Arts 162.
Significant topics in argumentation: the formulation of problems for argument; analysis; the brief with patterns of argument, traditional and recent; presumption; probability; laws of evidence; fallacies.

271. Problems of Aphasia (3)
Prerequisites: Speech Arts 170, 172, 176.
Principles of evaluation of aphasia, familiarity with diagnostic tools, theories of aphasia and therapy for persons with disorders of symbolization: i.e. adult and congenital aphasia. Evaluation of current research in aphasia studies.

272. Problems of Cerebral Palsy (3)
Prerequisites: Speech Arts 170, 172, 174.
Principles of evaluation, theories of treatment and therapy for persons with speech disorders in cerebral palsy. Evaluation of current research in cerebral palsy.

273. Problems of Cleft Palate (3)
Prerequisites: Speech Arts 170, 172, 174.
Principles of diagnosis and therapy for persons with cleft palate speech problems. Evaluation of current research in this area.

274. Problems of Stuttering (3)
Prerequisites: Speech Arts 170, 173, 176.
Principles of evaluation of theories, individual and group therapy for child and adult stutterer; evaluation of current research in this area.

275. Problems of Voice Pathology (3)
Prerequisites: Speech Arts 170, 172, 174, 276.
Structural, medical and functional voice problems. Diagnosis, theories and therapy for vocal problems. Evaluation of current research.

276. Voice Science (3)
Prerequisites: Speech Arts 172.
Relationship of basic principles of sound to the speech mechanism. Analysis of speech sound production. Application of mechanical and electronic equipment to speech.

277. Seminar in Audiology (3)
Prerequisites: Speech Arts 171A, 171B, 177.
Major experimental research in physiological and psycho-acoustical nature of hearing. Critical analysis of audiometric techniques used in differential diagnosis. Maximum credit six units applicable on a master's degree.

279. Advanced Diagnostic Methods in Speech Therapy (3)
Prerequisites: Speech Arts 180A (3), 179A, 179B.
Diagnosis of individuals with complicated speech problems as brain injury, congenital aphasia, adult aphasia, cerebral palsy, hearing loss, laryngectomy, mental retardation, stuttering and voice problems.

280A. Advanced Field Work in Clinical Practice in Speech Correction (1 or 2)
Prerequisites: Speech Arts 174 and 176.
Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies. etc May be repeated for a maximum of four units, only two of which may be used for graduate credit on a master's degree.

280B. Advanced Field Work in Clinical Practice in Hearing Problems (1 or 2)
Prerequisites: Speech Arts 171, 177, and 178.
Advanced casework in hearing evaluation, record keeping, research problems, and therapy (auditory training, lipreading, speech correction for hard of hearing or deaf, and language building). May be repeated to a maximum of four units, only two of which may be used for graduate credit on a master's degree.

281. Survey Research in Broadcasting (3)
Prerequisite: Speech Arts 200.
Techniques used by rating services, broadcasters, and mass communication researchers.

282. Seminar in History of Broadcasting (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting.
The development of broadcasting in its social, legislative, and economic settings, with emphasis upon broadcasting in the U.S.

283. Seminar in Broadcast Management (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting and Speech Arts 181.
Study of the legal and regulatory milieu of broadcasting from the perspective of station management.

284. Seminar in Programing and Production (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting.
Theory and analysis of programing and production in broadcasting.

285. Seminar in Educational Broadcasting (3)
Prerequisite: The equivalent of an undergraduate major in broadcasting.
Study of educational, social, and economic role of noncommercial educational broadcasting in the U.S., primarily from the perspective of educational station management.

288. Seminar in Media Communication Theory (3)
Prerequisite: Speech Arts 135.
Socio-psychological theories and models of mass communication in relation to cultural values and social control, and the impact of media in a variety of groups and institutions.

290. Experimental Procedures in Public Address-Communication (3)
Prerequisite: Credit or concurrent registration in Speech Arts 200.
Examination and evaluation of appropriate experimental procedures and traditional methods; special problems in research design.

291. Seminar in Group Discussion Theory (3)
Prerequisite: Speech Arts 191.
A study of descriptive and experimental literature on group discussion covering such topics as interaction, leadership, and means of evaluation.

293. Seminar: Greek and Roman Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

294. Seminar: 18th Century British Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

295. Seminar: American Public Address—1700-1900 (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

297. Seminar: Contemporary American Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

ZOOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professors: Bohnsack, Crawford, R., Crouch, Harwood, Huffman (Chairman), Hunsaker, Olson

Associate Professors: Brookes, Carpenter, Etheridge, Norland, Plymale, Wilson

Assistant Professors: Catlett, Cohn, Collier, G., Dexter, McLean

Lecturer: Kaston

Offered by the Department

Master of Arts degree with a major in biology and an emphasis in zoology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in zoology with the A.B. degree in liberal arts and sciences.

Major in zoology with the B.S. degree in applied arts and sciences.

Minor in zoology.

Teaching major in the biological sciences, with specialization in secondary teaching, requiring an undergraduate major in one of the biological sciences.

ZOOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

All candidates for a degree in liberal arts and sciences must complete the graduation requirements listed on page 76 of this catalog. To satisfy the requirement in foreign languages, it is strongly recommended that students select French, German, or Russian.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Zoology 50 and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 2A-2B; and Mathematics 21 or 40. (38–40 units.) Recommended: Mathematics 22 or 50 and Physics 3A and 3B.

Major. A minimum of 24 upper division units in biology, botany, microbiology and zoology to include the following: Biology 101 or Zoology 140; Biology 110 and 155; Botany 101 or 102 or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102.

ZOOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed on page 72 of this catalog.

A minor is not required with this major.

Preparation for the major. Biology 1, 2, and 15; Zoology 50, and 60 or 106; Chemistry 1A-1B and 11 or 12; Physics 2A-2B; and Mathematics 21 or 40. (38–40 units.) Recommended: Mathematics 22 or 50 and Physics 3A and 3B.

Major. A minimum of 36 upper division units, 28 of which must be in biology, botany, microbiology and zoology, to include the following: Biology 101 or Zoology 140; Biology 110 and 155; Botany 101 or 102 or 103; Biology 101 or 103, or Microbiology 101, or Zoology 108; Biology 156 or Zoology 102. Units to complete the major must be selected with the approval of the adviser; up to 8 upper division units can be in chemistry, geology, mathematics and physics.

ZOOLOGY MINOR

The minor in zoology consists of from 15 to 22 units in biological sciences, six units of which must be in upper division courses, with the approval of the zoology adviser.

BIOLOGICAL SCIENCES MAJOR

FOR THE STANDARD TEACHING CREDENTIAL

Specialization in Secondary Teaching

The teaching major for secondary teaching requires an undergraduate major in one of the biological sciences: biology, botany, microbiology, or zoology. All elective courses in the major must have prior approval by the Life Science Division adviser for biological sciences teaching programs.

Postgraduate Year. A minimum of six units from courses acceptable for graduate credit on a master's degree program in the biological sciences. Courses must have approval of the adviser for biology teaching programs. (Six units of graduate course work toward completion of a minor may be substituted for this requirement.)

LOWER DIVISION COURSES

8. Human Anatomy (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: An introductory course in high school or college biology or zoology.

Systems of the human body and their interrelationships.

50. Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

60. Vertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

An introductory course in the biology of the vertebrates with emphasis on the vertebrate organism as a whole: anatomy, physiology, development and evolution.

UPPER DIVISION COURSES

102. Invertebrate Embryology (3)

Two lectures and three hours of laboratory.

Prerequisite: Zoology 50.

Description and experimental analysis of the development of invertebrates.

106. Comparative Anatomy of the Vertebrates (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2.

Dissection, study and comparison of organ systems of typical vertebrates.

108. Histology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 1 and 2. Recommended: Zoology 8 or 60 or Microbiology 101.

A study of the microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

112. Marine Invertebrate Zoology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Zoology 50 and Biology 110.

Ecology, morphology, behavior, and physiology of marine invertebrates. Frequent field trips to local marine environments.

114. Natural History of the Vertebrates (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: One semester of college biology.
Natural history, distribution and classification of vertebrate animals; emphasis on local forms. Not open to zoology majors.

115. Ichthyology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 60 or 106.
Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

116. Herpetology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Consent of instructor.
The origin, evolution, distribution, and systematics of amphibians and reptiles of the world.

117. Ornithology (4) II
Two lectures and six hours of laboratory or field excursions, and a field project.
Prerequisites: Biology 1 and 2 and consent of instructor.
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

118. Mammalogy (4) I
Two lectures and six hours of laboratory.
Prerequisites: Zoology 60 or 106.
The evolution, systematics, distribution, and ecology of mammals of the world.

119-S. Field Zoology (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science.
Observational methods; collecting techniques; identification, ecology, and behavior of southern California animals. Primarily for students not majoring in the Life Sciences Division.

121. General Entomology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50.
Structure, physiology, natural history, and classification of insects.

122. Advanced Entomology (3)
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Advanced treatment of some phase of entomology such as physiology, morphology, systematics or ecology, topic to be announced in the class schedule. Maximum credit six units, not more than three of which may apply to a master's degree.

123. Immature Insects (3) II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Collection, preservation, identification, and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

125. Economic Entomology (4)
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Botany 103.
Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

126. Medical Entomology (3) II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 50 or 60 or Microbiology 101.
The role of insects and other arthropods in transmission and causation of human diseases.

128. Parasitology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Microbiology 101.
Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

130. Protozoology (4)
Two lectures and six hours of laboratory.
Prerequisite: Consent of instructor.
Morphology, physiology, ecology and systematics of the protozoa; protozoological techniques.

135. Scientific Illustration (3)
Two lectures and three hours of laboratory; field trips.
Preparation of illustrative materials, inked drawings, charts, lettering, models, still and movie photography, and photomicrography. (Formerly Biology 135.)

140. Physiological Zoology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Zoology 60 or 106, and Chemistry 12.
A comparative and evolutionary study of the functions of organ systems and their environmental significance.

145A-145B. Experimental Animal Surgery (2-2) I, II
One lecture and three hours of laboratory.
Prerequisites: A course in vertebrate anatomy and a course in animal physiology and consent of instructor; 145A is prerequisite to 145B.
Fundamental principles of animal care, disease prevention, and aseptic surgery.

150. Marine Biology (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Biology 1.
An introduction to marine organisms and their environment. Not open to students with credit for Zoology 50 or Biology 110.

155. Principles of Taxonomy, Systematics and Phylogeny (3) II
Two lectures and three hours of laboratory.
Prerequisites: Any one of the following: Zoology 50, 60, 106, Botany 101, 102, 103.
Basis for the classification of organisms. Modern concepts and their application in zoology. Specific problems in laboratory and field.

160. Vertebrate Paleontology (3)
Three lectures.
Prerequisite: Zoology 106.
Advanced studies in the evolution of vertebrates.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Animal Behavior (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Zoology 50 and 60.
Physiological, morphological, and ecological bases of animal behavior, and of its adaptive significance.

190. Senior Investigation and Report in Invertebrate Zoology (2)
Prerequisite: Consent of instructor.
Investigation and reports on the current literature of invertebrate zoology.

191. Senior Investigation and Report in Vertebrate Zoology (2)
Prerequisite: Consent of instructor.
Investigation and reports on the current literature of vertebrate zoology.

198. Methods of Investigation (2) I, II
One discussion and three additional hours to be arranged.
Prerequisite: Consent of instructor.
Selection and design of individual research in zoology; oral and written reports. Four units maximum credit for Zoology 198 or a combination of this course with Biology or Microbiology 198.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in biological sciences with a grade of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
An intensive study in advanced zoology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Seminar in Marine Zoology (2)
Prerequisite: Biology 110.
Recent developments in marine zoology. Maximum credit four units applicable on master's degree.

206. Seminar in Vertebrate Morphology (2)
Prerequisite: Zoology 106.
Current problems in the descriptive, functional and evolutionary anatomy of vertebrates. Maximum credit four units applicable on a master's degree.

209. Seminar in the Biology of Cold-blooded Vertebrates (2)
Prerequisite: Zoology 60 or 106.
Biology of ectothermic animals. Maximum credit four units applicable on a master's degree.

210. Seminar in the Biology of Warm-blooded Vertebrates (2)
Prerequisites: Zoology 60 or 106.
Biology of endothermic animals. Maximum credit four units applicable on a master's degree.

212. Advanced Marine Invertebrate Zoology (3)
One lecture and six hours of laboratory.
Prerequisite: Zoology 112.
Selected topics in advanced marine invertebrate zoology.

290. Bibliography (1)
The use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

291. Research Techniques (3)
Prerequisite: Consent of graduate adviser.
Analysis of research techniques in zoology.

297. Research (1-6)
Research in one of the fields of Zoology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ADDENDA

FACULTY DIRECTORY

INDEX

FACULTY DIRECTORY

FOR 1967–1968

LOVE, MALCOLM A. (1952).......... President
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College; L.H.D., Colorado State College; LL.D., University of Nevada.

ABBOTT, MITCHEL T. (1964).......... Assistant Professor of Chemistry
B.Sc., Ph.D., University of California, Los Angeles.

ACCOMANDO, ALLAN J. (1966).......... Assistant Professor of Mathematics
B.A., M.S., New York University.

ACKERLY, ROBERT S., JR. (1963).......... Assistant to Vice President for Academic Affairs
B.A., College of Wooster; A.M., Colgate University; Ed.D., Indiana University.

ACKLEY, JOHN W. (1947).......... Professor of Speech Arts
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

ADAMS, EILEEN (Mrs. Bert) (1949).......... Campus Laboratory School Librarian
A.B., Willamette University; B.S. in L.S., University of Denver.

ADAMS, JOHN R. (1928).......... Chairman, Division of Humanities; Professor of English
A.B., A.M., University of Michigan; Ph.D., University of Southern California.

ADAMS, WILLIAM J. (1955).......... Professor of Speech Arts
B.S., McMurray College; M.A., Northwestern University; Ph.D., Stanford University.

AGUIRRE, EDWARD (1963).......... Associate Professor of Industrial Arts
B.A., M.A., Ed.D., Arizona State University.

AKERS, FRED C. (1966).......... Assistant Professor of Marketing
B.S., University of Missouri; M.B.A. (Marketing), Northwestern University; M.B.A. (Economics), Ph.D., University of Chicago.

ALCORN, MARVIN D. (1941).......... Professor of Education
A.B., Southwestern College; A.M., Teachers College, Columbia University; Ed.D., University of Southern California.

ALEXANDER, JAMES V. (1967).......... Assistant Professor of Botany
A.B., San Diego State College; M.S., Ph.D., University of California.

ALF, EDWARD F., JR. (1963).......... Associate Professor of Psychology
B.A., San Diego State College; Ph.D., University of Washington.

ALLISON, EDWIN C. (1960).......... Associate Professor of Geology
B.S., M.A., Ph.D., University of California.

ALTAMURA, NICHOLAS C. (1967).......... Assistant Professor of French
B.S., Ithaca College; M.Ed., University of Arizona; Ph.D., Arizona State University.

AMBLE, KJELL (1962).......... Associate Professor of Speech Arts
B.A., Denison University; M.A., Ph.D., Northwestern University.

ANDERSON, ALICE J. (Mrs.) (1965).......... Assistant Professor of Education
B.A., Ball State Teachers College; M.A., State College of Iowa; additional graduate study, University of Minnesota.

ANDERSON, ALLAN W. (1962).......... Associate Professor of Philosophy
B.A., Washington Missionary College; M.A., Trinity College; Ph.D., Columbia University.

ANDERSON, ARTHUR J. O. (1961).......... Associate Professor of Anthropology
B.A., San Diego State College; M.A., Claremont Colleges; Ph.D., University of Southern California.

ANDERSON, EVANS L. (1954).......... Professor of Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.

ANDERSON, GRAYDON K. (1949).......... Professor of Economics
A.B., Willamette University; Ph.D., University of Wisconsin.

ANDERSON, HAYES L. (1966).......... Assistant Professor of Speech Arts
B.A., Oregon State University; M.A. and additional graduate study, Michigan State University.

ANDERSON, MELVIN A. (1956).......... Dean of Admissions and Records
B.Ed., Northern Illinois State College; M.A., Northwestern University; Ed.D., University of California at Los Angeles.

ANDERSON, PAUL S. (1955).......... Professor of Education
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.

ANDERSON, PAUL V. (1954).......... Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.

ANDERSON, W. CARLISLE (1955).......... Professor of Industrial Arts
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.

ANDERSON, ZOE E. (1965)........Assistant Professor of Home Economics
B.S.A.S., Illinois Institute of Technology; M.S., Ph.D., University of Illinois.

ANDRAIN, CHARLES F. (1964)........Associate Professor of Political Science
B.A., Whittier College; M.A., Ph.D., University of California.

ANDRUS, RUTH (1962)........Associate Professor of Physical Education
B.S., Utah State University; M.S., University of Oregon; Ph.D., State University of Iowa.

ANINGER, THOMAS (1967)........Assistant Professor of English
B.A., M.A., Ph.D. candidate, University of California, Los Angeles.

ANTHONY, SALLY M. (Mrs.) (1965)........Assistant Professor of Education
A.B., University of California, Los Angeles; Ed.M., Ed.D., Rutgers University.

‡APPLE, JOE A. (1947)........Professor of Education
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.

APPLEBY, JOYCE O. (Mrs. A.) (1967)........Assistant Professor of History
B.A., Stanford University; M.A., University of California, Santa Barbara; Ph.D., Claremont Graduate School.

ARCHER, ELLIS C. (1956)........Professor of Business Education
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.

ATCHISON, THOMAS J. (1965)........Assistant Professor of Management
A.B., Stanford University; M.B.A., University of California, Los Angeles; D.B.A., University of Washington.

ATKINSON, BEATRICE (1954)........Associate Professor of Nursing
B.S., College of St. Scholastica; M.A., San Diego State College.

ATWATER, JOAN M. (1966)........Instructor in English
B.A., Boston University; M.A., San Francisco State College.

AWBREY, FRANK T. (1964)........Assistant Professor of Biology
B.A., University of California, Riverside; M.A., Ph.D., University of Texas.

BABILOT, GEORGE (1956)........Professor of Economics
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.

BACON, GUINIVERE KOTTER (Mrs. George) (1928)........Associate Professor of Education
B.S., Utah Agricultural College; M.A., Stanford University; additional graduate study.

BACON, RICHARD P. (1963)........Lecturer in Engineering
A.B., M.A., Miami University.

‡BAER, ADELA S. (1962)........Associate Professor of Biology
B.S., University of Illinois; Ph.D., University of California.

BAILEY, ALLAN R. (1968)........Assistant Professor of Accounting
B.S., San Diego State College; M.B.A., doctoral candidate, University of California, Los Angeles.

BAILEY, BARBARA ANN (Mrs. J. J.) (1966)........Assistant Professor of Nursing
B.S. (Nursing), College of St. Catherine, Minnesota; M.S., University of Michigan.

BAILEY, GERALD D. (1964)........Assistant Professor of Industrial Arts
B.A., M.A., Central Washington State College; Ed.D., University of Missouri.

BAILLY, KAMILLA U. (Mrs.) (1966)........Assistant Professor of Social Work
B.A., M.S.W., University of Denver; additional graduate work, University of Southern California and Bryn Mawr College.

BAKER, ANN W. (1967)........Assistant Professor of Sociology
B.A., Miami University, Ohio; M.A., Ph.D. candidate, Michigan State University.

BAKER, CARROLL M. (1964)........Associate Director of Libraries, Technical Services
A.B., University of California, Los Angeles; M.A., University of Chicago.

BAKER, CLIFFORD H. (1937)........Professor of Spanish
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.

BAKER, DOUGLAS L. (1954)........Professor of Education
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.

‡BAKER, JAMES R. (1956, except 1961–62)........Professor of English
B.A., M.A., Ph.D., University of Denver.

BAKER, KEEFE L. (1965)........Assistant Professor of Art
B.F.A., University of Colorado; M.F.A., State University of Iowa.

BALDWIN, ELMER D. (1963)........Assistant Professor of Education
B.A., College of the Pacific; M.A., University of Connecticut; Ed.D., Washington State University.

BALLANTINE, FRANCIS A. (1949)........Professor of Education
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.

BARBER, WILLIAM F. (1959)........Professor of Marketing
B.B.A., M.B.A., D.B.A., University of Washington.

BARCKLEY, ROBERT E. (1955)........Professor of Economics
B.S., University of North Dakota; M.A., Columbia University; Ph.D., University of Illinois.

BARCLAY, A. BERNICE (1962)........Assistant Humanities Librarian
A.B., San Diego State College; M.A. in L.S., University of Denver.

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‡On leave, year 1967–68.

BAREND, PETER W. (1965) Registrar
A.B., San Diego State College.

BARONE, JOAN F. (1960) Assistant Professor of Physical Education
B.S., Sargent College, Boston University; M.S., Springfield College, Massachusetts.

BARTHOLOMEW, FRANCIS M., JR. (1967) Assistant Professor of History
B.A., University of California; M.A., Ph.D. candidate, Princeton University.

BAS, JOE (1966) Assistant Professor of Spanish
A.B., Long Beach State College; M.A., Ph.D., University of Southern California.

BASSET, ALLEN M. (1961) Associate Professor of Geology
B.A., Amherst College; M.A., Ph.D., Columbia University.

BAUER, EDWARD G. (1956) Associate Professor of Engineering
B.S., U. S. Naval Academy; M.S., University of California.

BAXTER, ROBERT J. (1962) Assistant Professor of Art
B.S., M.S., M.F.A., University of Wisconsin

BAXTER, WILLIAM L. (1963) Associate Professor of Microbiology
A.B., Ph.D., University of California, Los Angeles.

BEARDEN, MARGARET F. (Mrs. V.) (1966) Lecturer in History
A.B., San Diego State College.

BECKER, GERALD A. (1958) Professor of Mathematics
B.A., M.S., Ph.D., State University of Iowa.

BECKLUND, LESTER A. (1967) Assistant Professor of Education
B.S., M.Ed., Ph.D. candidate, University of Minnesota.

BEDORE, ROBERT L. (1959) Professor of Engineering
B.S.M.E., M.S.M.E, Purdue University. Registered Professional Mechanical Engineer.

BELCHER, DAVID W. (1957) Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.

BENJAMIN, ROBERT L. (1953) Professor of Speech Arts
A.B., University of California; M.S., Ph.D., University of Wisconsin.

BENSON, JACKSON J. (1966) Assistant Professor of English
A.B., Stanford University; M.A., San Francisco State College; Ph.D., University of Southern California.

BENTON, CARL W. (1948) Professor of Physical Education
B.S., University of California at Los Angeles; M.S., Ed.D., University of Southern California.

BERG, ROBERT V. (1963) Assistant Professor of Art
B.S., Moorhead State College, Minnesota; M.F.A., University of Minnesota.

BERGE, DENNIS E. (1963) Associate Professor of History
A.B., M.A., San Diego State College; Ph.D., University of California.

BERRY, RICHARD W. (1961) Associate Professor of Geology
B.S.E.M., Lafayette College; M.A., Ph.D., Washington University.

BEST, WALLACE H. (1967) Visiting Professor of Political Science
A.B., Occidental College; A.M., Ph.D., University of Southern California.

†BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956) Professor of Art
A.B., M.A., University of California, Los Angeles; additional graduate study, Teachers College, Columbia University, and University of California.

BIGGER, W. RICHARD (1952) Professor of Political Science
B.A., M.A., University of Wisconsin; Ph.D., University of California at Los Angeles.

BIGGS, MILLARD R. (1958) Cordinator of Graduate Studies
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.

BILTERMAN, HENRY L. (1956) Assistant Professor of Engineering
B.S.E.E., University of Iowa; M.A., San Diego State College.

BIRCH, AILEEN J. (Mrs. C. E.) (1949) Assistant Professor of Education
A.B., M.A., San Diego State College.

BISSELL, BARBIKAY B. (1967) Assistant Professor of Business Education
B.S., University of Arizona; M.S., Ph.D. candidate, Arizona State University.

BLACK, NATHALIA C. (Mrs. V.) (1958) Assistant Professor of English
Special study at Barnard College, University of Madrid, and Sorbonne.

BLANC, SAM S. (1966) Assistant Professor of Education
A.B., Colorado State College; M.A., Ed.D., University of Denver.

BLICK, JAMES D. (1966) Assistant Professor of Geography
A.B., M.A., Ph.D., University of California, Los Angeles.

BLYTH, JOHN D. (1957) Professor of Music
B.M., M.M., Illinois Wesleyan University; Ed.D., Teachers College, Columbia University.

BOHNSACK, KURT K. (1956) Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.

†BOLTE, JOHN R. (1962) Associate Professor of Physics
B.A., M.A., Iowa State Teachers College; M.S., Oklahoma State University; Ph.D., State University of Iowa.

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†On leave, spring 1967–68.

BONEY, ELAINE E. (1963) .... Associate Professor of German
A.B., University of Kansas; M.A., University of Wisconsin; Ph.D., University of Texas.

BOOTH, ROBERT S. (1967) .... Assistant Professor of Social Work
B.A., Washington State University; M.S., Boston University.

BOSKIN, WARREN D. (1965) .... Assistant Professor of Health Education
B.S., Brooklyn College; M.S., University of Illinois; Ed.D. candidate, West Virginia University.

BOWER, ROLAND C. (1964) .... Assistant Professor of Sociology
A.B., San Diego State College; M.A., Ph.D. candidate, University of California, Los Angeles.

BOWNE, WILLIAM F. (1959) .... Assistant Professor of Art
B.E., M.A., University of California at Los Angeles.

BRADLEY, WALLACE W. (1961) .... Assistant Professor of Education
B.S., University of Maryland; M.A., San Diego State College.

BRANDT, CHARLES L. (1957) .... Professor of Biology
B.A., Ph.D., Stanford University.

BRANSTETTER, R. DEANE (1955) .... Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., State University of Iowa; Ph.D., Iowa State College.

BRAY, HENRY G. (1962) .... Associate Professor of Mathematics
B.A., San Diego State College; M.S., Ph.D., Iowa State University.

BRIDENSTINE, DON C. (1956) .... Professor of Economics
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

BRIGGS, ROBERT M. (1957) .... Professor of Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education

BROADBENT, HARRY H. (1949) .... Associate Professor of Physical Education
A.B., University of Oklahoma; M.S., University of Pennsylvania.

‡BROADSHATZER, ARTHUR (1956) .... Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University; D.B.A., University of Southern California; Certified Public Accountant.

BROOKES, JOHN A. (1964) .... Associate Professor of Biology
A.B., Occidental College; M.S., San Diego State College; Ph.D., University of Southern California.

BROWN, ELIZABETH McPIKE (Mrs. L. P.) (1926) .... Professor of French
Ph.B., M.A., Ph.D., University of Chicago; additional graduate study at the Sorbonne, Paris, France; Certificat d'Etudes Francaises; Diplôme de l'Association Générale de Phonétique, Paris, France; Officier dans l'Ordre des Palmes Académiques.

BROWN, WILLIAM L. (1962) .... Assistant Professor of Engineering
B.S.E.E., Professional Degree in Electrical Engineering, Mississippi State University.

†BRUCE, PAUL (1957) .... Professor of Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., State University of Iowa.

BRUDERER, CONRAD (1963) .... Assistant Professor of Music
B.M., Oberlin Conservatory, M.M. and additional graduate study, Indiana University.

BRUNSON, THEODORE R. (1966) .... Assistant Professor of Music
B.Sc., University of Minnesota; M.M., University of Nebraska; doctoral candidate, University of Arizona.

BRYANT, STEVEN J. (1964) .... Associate Professor of Mathematics
B.A., University of Chicago; M.A., University of North Carolina; Ph.D., University of Missouri.

BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936) .... Professor of Education
A.B., San Diego State College; M.A., Ph.D., Claremont Graduate School.

BUCKALEW, JAMES K. (1967) .... Assistant Professor of Journalism
A.B., M.A., Indiana State College; Ph.D., University of Iowa.

BULMAN, DAVID M. (1967) .... Assistant Professor of Mathematics
A.B., San Diego State College; Diplom-Math., and additional graduate study, Technische Hochschule, Munchen, Germany.

BURGESS, WILLIAM C. (1961) .... Associate Professor of Health Education
A.B., M.A., University of North Carolina; Ed.D., Teachers College, Columbia University.

BURNETT, GAIL A. (1947, except 1951–52) .... Professor of English and Classics
A.B., Randolph-Macon Woman's College; M.A., University of California at Los Angeles; Ph.D., University of Southern California.

BURTON, CHARLES R. (1959) .... Professor of Mathematics
B.A., M.A., University of Kansas; M.A., Ph.D., University of California.

BUTLER, RAY R. (1967) .... Assistant Professor of Physical Education
B.A., M.Ed., University of Minnesota.

CAMACHO, JOSEPH G. (1968) .... Registrar
B.S., San Diego State College.

CAMPBELL, LOIS B. (1947) .... Associate Professor of Education
A.B., University of California; M.A., Teachers College, Columbia University.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

CANNON, NONA H. (Mrs. B. C.) (1959)....Professor of Home Economics
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.

CAPP, MARTIN P. (1953)....Dean, School of Engineering; Professor of Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.

CARELLA, MICHAEL J. (1967)....Assistant Professor of Philosophy
B.A., St. Patrick's College, California; M.A., St. Louis University; Ph.L., Ph.D., University of Louvain, Belgium.

CARLSON, HILDING B. (1948)....Professor of Psychology
Ph.B., M.S., Ph.D., University of Chicago.

CARNEVALE, JAMES P. (1967)....Assistant Professor of Education
B.A., University of California, Los Angeles; M.A., San Diego State College; Ph.D. candidate, University of Southern California.

CARPENTER, ROGER E. (1963)....Associate Professor of Zoology
B.A., University of Arizona; Ph.D., University of California, Los Angeles.

CARPENTER, SALLY H. (Mrs. T.) (1967)....Financial Aids Counselor
B.A., Stanford University.

CARTER, J. E. LINDSAY (1962)....Associate Professor of Physical Education
Diploma in Physical Education, University of Otago, New Zealand; Teaching Certificate, Aukland Teachers College, New Zealand; M.A., Ph.D., State University of Iowa.

CASE, THOMAS E. (1961)....Associate Professor of Spanish
B.A., St. Thomas College; M.A., Ph.D., State University of Iowa.

CATLETT, ROBERT H. (1964)....Assistant Professor of Zoology
A.B., M.A., Colorado College; Ph.D., University of California, Davis.

CAVE, MARY F. (1946)....Associate Professor of Physical Education
B.S., University of North Dakota; M.A., San Diego State College.

CHADWICK, LEONARD E (1949)....Assistant Professor of Economics
B.S. and additional graduate study at the University of California.

CHAN, SHU-YUN (1965)....Assistant Professor of Engineering
B.S., Susquehanna University; B.S.E.E., Columbia University; M.S.E.E., Ph.D., University of Michigan.

CHANDLER, SHELLY E. (Mrs. D.) (1966)....Assistant Professor of Sociology
B.A., M.A., Ph.D., University of California, Los Angeles.

CHANG, HAI-YAIN (1967)....Assistant Professor of Engineering
B.S., Cheng Kung University, China; M.S., Ph.D., Colorado State University.

CHAPMAN, JAMES L. (1959, except 1961–63)....Associate Professor of Business Law and Finance
B.S., J.D., Northwestern University.

‡CHARLES, CAROL M. (1961)....Associate Professor of Education
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.

CHATER, ELIZABETH E. (Mrs. M.) (1964)....Assistant Professor of English
B.A., University of British Columbia; M.A., San Diego State College.

CHU, PAOCHIN (1967)....Assistant Professor of History
B.A., National Taiwan University, Taiwan; M.A., Ph.D. candidate, University of Pennsylvania.

CLARK, MARGARET A. (1966)....Assistant Professor of Education
B.A., Whittier College; M.A., Ed.D., Teachers College, Columbia University.

CLARK, ORRIN H. (1960)....Professor of Physics
A.B., Columbia College; M.A., Columbia University; Ph.D., New York University.

CLAY, DIXIE M. (1967)....Lecturer in Home Economics
A.B., B.S., Marshall College; M.P.H., University of California, Los Angeles.

COAKLEY, RUTH M. (1961)....Associate Professor of Nursing
B.S., Hunter College of the City of New York; A.M., Teachers College, Columbia University.

COHN, THEODORE J. (1964)....Assistant Professor of Zoology
B.S., Cornell University; M.S., Ph.D., University of Michigan.

COLLICA, STEPHEN (1966)....Assistant Professor of Education
B.S., College at Oneonta; M.A., Teachers College, Columbia University.

COLLIER, BOYD D. (1966)....Assistant Professor of Biology
B.A., University of California; M.S.T., Ph.D., Cornell University.

COLLIER, GERALD (1961)....Assistant Professor of Zoology
B.A., M.A., and doctoral candidate, University of California at Los Angeles.

COLOMBO, ALBERT A. (1967)....Assistant Professor of Geography
B.S., California State College at Long Beach; M.A., San Diego State College.

CONLEY, HARRIET J. (1967)....Assistant Professor of Nursing
B.S., Barry College, Florida; M.S., University of Michigan.

CONLY, JOHN F. (1962)....Associate Professor of Engineering
B.S.M.E., M.S.M.E., University of Pennsylvania; Ph.D., Columbia University.

COOPER, THEODORA W. (Mrs.) (1965)....Assistant Placement Officer
Study at University of Minnesota.

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‡On leave, year 1967–68.

†COOX, ALVIN D. (1964) Associate Professor of History
B.A., New York University; M.A., Ph.D., Harvard University.

CORYELL, DONALD D. (1961) Professor of Physical Education
B.A., M.S., University of Washington.

COTTRELL, DON M. (1967) Assistant Professor of Physics
B.S., Ph.D., University of Washington.

COVENY, CECELIA T. (1957) Professor of Nursing
B.S., University of Minnesota; M.P.H., University of North Carolina.

COVER, CLARENCE B. (1959) Building Program Assistant
B.S., M.A., Ohio State University.

COVINGTON, DON P. (1965) Assistant Professor of Art
B.A., Southern Methodist University; M.A., University of California, Los Angeles.

COX, GEORGE W. (1962) Associate Professor of Biology
B.A., Ohio Wesleyan University; M.S., Ph.D., University of Illinois.

‡COX, MARJORIE S. (Mrs.) (1961) Assistant Professor of French
A.B., University of Kansas; M.A., University of Colorado; doctoral candidate, University of California.

COX, THOMAS R. (1967) Assistant Professor of History
B.S., Oregon State College; M.S., Ph.D. candidate, University of Oregon.

CRAIG, ROBERT L. (1960) Assistant Professor of Physics
A.B., Doane College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.

CRAIN, MELVIN (1959) Associate Professor of Political Science
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

CRAWFORD, MAURICE L. (1954) Acting Dean, School of Business Administration; Professor of Business Education
B.S., M.S., University of Utah; Ed.D., University of California at Los Angeles.

‡CRAWFORD, PATRICIA A. (1961) Associate Professor of Philosophy
B.A., M.A., University of Rochester; Ph.D., University of Minnesota.

CRAWFORD, RONALD W. (1953) Professor of Zoology
A.B., San Diego State College; Ph.D., Cornell University.

CRISLEY, CORNELIUS J. (1962) Assistant Social Sciences Librarian
A.B., University of Pittsburgh; M.L.S., Carnegie Institute of Technology.

CROUCH, JAMES ENSIGN (1932) Chairman, Division of Life Sciences; Professor of Zoology
B.S., M.S., Cornell University; Ph.D., University of Southern California.

CROUSE, GALE K. (1967) Instructor in French
B.S., Eastern Illinois University; M.A., University of Wisconsin.

CRUM, CLYDE E. (1955) Professor of Education
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.

CULLEN, FLORENCE P. (1964) Assistant Professor of Physical Education
B.S., Illinois State University; M.A., State University of Iowa; Ph.D., University of Illinois.

CUMMINS, EMERY J. (1966) Assistant Professor of Education
B.A., Wheaton College; M.S., University of Southern California; Ph.D. Michigan State University.

CUNNIFF, ROGER L. (1967) Assistant Professor of History
B.A., M.A., Colorado State College; Ph.D. candidate, University of Texas.

DANDLIKER, JOHN D. (1964) Assistant Professor of Spanish
B.S., M.A., University of Wisconsin; additional graduate study, Universities of California and Oregon.

DANIEL, LARK O., III (1955) Professor of Psychology
B.A., M.A., Southern Methodist University; Ph.D., Purdue University.

DANIELS, MORRIS J. (1956) Professor of Sociology
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.

DARBY, RICHARD L. (1966) Assistant Professor of Biology
B.A., Ph.D. candidate, University of Oregon.

‡DARLEY, RICHARD D. (1961) Associate Professor of Marketing
B.S., Cornell University; M.S., University of Missouri; Ph.D., Purdue University.

DAUB, CLARENCE T., JR. (1967) Assistant Professor of Astronomy
B.A., Carleton College; Ph.D., University of Wisconsin.

DAUGHERTY, WAYNE F., JR. (1966) Assistant Professor of Biology
B.A., Long Beach State College; Ph.D., Johns Hopkins University.

DAVIES, M. HILARY (1966) Assistant Professor of Mathematics
First Class Honours and Ph.D., University College of Wales.

DAVIS, ALYCE L. (Mrs. M. H.) (1959) Reclassification Librarian
B.S., Alabama State College; M.A., Columbia University; additional graduate study, Simmons College.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

DAVIS, CRAIG H. (1967) Assistant Professor of Biology
B.S., Oregon State University; M.S., Ph.D., University of Washington.

DAVIS, GLOVER T., II (1966) Instructor in English
B.A., Fresno State College; M.F.A., State University of Iowa.

DEATON, EDMUND I. (1960) Professor of Mathematics
B.A., Hardin-Simmons University; M.A., Ph.D., University of Texas.

DeLISE, DONALD A. (1966) Assistant Professor of Physics
A.B., University of California; M.S., Ph.D., University of Arizona.

DeLORA, JACK R. (1955) Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.

DESSEL, NORMAN F. (1961) Associate Professor of Physical Science
B.A., M.A., Ph.D., State University of Iowa.

DEXTER, DEBORAH M. (1967) Assistant Professor of Zoology
B.A., M.A., Stanford University; Ph.D., University of North Carolina.

DHARMARAJAN, SANGIAH (1960) Associate Professor of Engineering
B.Eng., College of Engineering, Madras, India; M.S., Ph.D., University of Illinois.

DICKEN, CHARLES F. (1962) Associate Professor of Psychology
B.A., M.A., Ph.D., University of Minnesota.

DICKERSON, MARY E. (1967) Assistant Professor of Home Economics
B.S., M.S., Kansas State University.

DICKINSON, FEDELIA R. (Mrs. J. W.) (1966) Gifts and Exchange Librarian
B.A., M.A., Immaculate Heart College; Ph.D., University of California, Los Angeles.

DICKINSON, JOHN W. (1962) Associate Professor of English
A.B., University of California, Santa Barbara; A.M., Ph.D., University of California, Los Angeles.

DICKINSON, STELLA C. (Mrs. H. F.) (1966) Lecturer in English
A.B., M.A., San Diego State College.

DICKSON, RONALD J. (1967) Assistant Acquisition Librarian
B.A., Park College, Mo.; M.A., University of Missouri; M.S.L.S., University of Illinois.

DIRKS, JOHN H. (1947) Professor of Art
A.B., San Diego State College; M.F.A., Claremont Graduate School.

DODDS, LOWELL J. (1957) Associate Professor of Accounting
A.B., University of Redlands; M.B.A., University of Denver. Certified Public Accountant.

DORFMAN, DONALD D. (1962) Associate Professor of Psychology
B.A., University of Pennsylvania; M.A., Ph.D., University of Michigan.

DORRIS, HELEN L. (1952) Associate Professor of Home Economics
B.S., Southern Illinois University; M.S., and additional graduate study, University of Illinois.

DOWNEN, ROBERT E. (1965) Admissions Officer
B.S., United States Naval Academy.

DRAKE, GLENDON F. (1966) Assistant Professor of English
A.B., Miami University; M.A., Oklahoma State University; additional graduate study, Michigan State University and University of Michigan.

DRELLICH, BARBARA J. (Mrs. R. M.) (1965) Assistant Humanities Librarian
A.B., San Diego State College; M.L.S., University of Pittsburgh.

DREYER, EDWARD C. (1963) Assistant Professor of Political Science
B.A., University of Redlands; doctoral candidate, University of North Carolina.

DROBNIES, SAUL I. (1963) Associate Professor of Mathematics
B.S., M.A., Ph.D., University of Texas; Post-Doctoral Fellow, Rice University.

DuFAULT, DAVID V. (1962) Lecturer in History
B.A., M.A., Occidental College; additional graduate study, University of Oregon.

DUKAS, VYTAS (1959) Associate Professor of Russian
A.B., M.A. (Russian), M.A. (German), Ph.D., University of Michigan.

DUNKLE, HARVEY I. (1963) Associate Professor of German
A.B., New York University; M.A., Ph.D., University of California.

DURRANT, GEORGE D. (1967) Lecturer in Art
A.B., M.A., San Diego State College.

EAGLE, JOHN E. (1946) Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.

EARNEST, SUE W. (Mrs. L. E.) (1947) Professor of Speech Arts
A.B., San Diego State College; M.A., Ph.D., University of Southern California.

EDRICH, MARY W. (Mrs.) (1967) Assistant Professor of English
B.A., Wisconsin State University; M.A., Ph.D., University of Wisconsin.

EIDE, MARY M. (1966) Assistant Professor of Spanish
B.S., North Dakota State University; M.A. and additional graduate study, University of Colorado.

EIDEMILLER, DONALD I. (1956) Professor of Geography
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

EL-ASSAL, MOHAMED M. E. (1967) Assistant Professor of Psychology
M.S., M.A., Ph.D., Indiana University.

EMAMI, JAVAD (1967)........Assistant Professor of Psychology
B.A., University of California, Los Angeles; Ph.D., University of Arizona.

ELLIOTT, ELAINE Z. (Mrs.) (1967)........Assistant Humanities Librarian
A.B., University of California, Los Angeles; M.L.S., University of California.

EPLER, MILDRED R. (Mrs. E.) (1964)........Assistant Professor of Education
A.B., M.A., San Diego State College.

ERICKSON, PAUL (1963)........Associate Professor of Education
B.A., Arizona State University; M.A., Stanford University; Ed.D., University of Southern California.

ESTES, RUSSELL G. (1963)........Assistant Professor of Music
B.M.E., M.M.E., Millikin University, Illinois; additional graduate study, University of Colorado and Colorado State College.

‡ETHERIDGE, RICHARD E. (1961)........Associate Professor of Zoology
B.S., Tulane University; M.S., Ph.D., University of Michigan.

EZELL, PAUL H. (1956)........Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.

FALK, CHARLES J. (1957)........Professor of Education
S.T.B., S.T.L., S.T.D., Urban University, Rome, Italy; additional graduate study at Claremont Graduate School.

FARRIS, DAVID A. (1960)........Professor of Biology
A.B., Indiana University; Ph.D. Stanford University.

FEARN, LEIF (1967)........Assistant Professor of Education
B.S., Shippensburg State College, Pa.; M.A., Ph.D. candidate, Arizona State University.

FEIERABEND, IVO K. (1959)........Professor of Political Science
B.A., M.A., University of Southern California; Ph.D., Yale University.

FEIERABEND, ROSALIND A (Mrs. I.) (1964)........Assistant Professor of Psychology
B.A., Swarthmore College; M.A., University of California; Ph.D., Yale University.

FELLERS, STANFORD (1966)........Assistant Professor of Health Education
A.B., Adams State College; M.A., Colorado State College; Ed.D., Boston University.

FERGIN, RICHARD K. (1964)........Associate Professor of Engineering
B.S.M.E., Washington State College; M.S.M.E., Sc.D., New Mexico State University; Registered Professional Engineer.

FERREL, DALE B. (1957)........Professor of Accounting
B.S., M.B.A., University of Denver. Certified Public Accountant.

FETZER, LELAND A. (1966)........Assistant Professor of Russian
B.S., University of Utah; M.L.S., M.A., doctoral candidate, University of California.

FINCH, WILLIAM A., JR. (1961)........Associate Professor of Geography
B.A., East Carolina College; M.A., University of Oklahoma; Ph.D., University of Illinois.

FIRLIT, SHARON L. (Mrs. C.) (1967)........Assistant Professor of Nursing
B.S.N., Loyola University, Chicago; M.S., University of Michigan.

*FISCH, ARLINE M. (1961)........Associate Professor of Art
B.S., Skidmore College; M.A., University of Illinois.

FISHBURN, CLARENCE E. (1955)........Professor of Education
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.

FISHER, HORACE H. (1966)........Assistant Professor of Business Law and Finance
A.B., University of Utah; M.A., Ph.D., University of Southern California.

FISHER, J. SHERRICK (1953)........Professor of Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.

FISHER, ROBERT T. (1966)........Assistant Professor of Business Law and Finance
B.S., M.Ed., Wayne State University; Ed.D., Michigan State University; J.D., Wayne State University.

FITZ, RICHARD A. (1959)........Professor of Engineering
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.

FLAGG, DENIS A. (1955)........Professor of Economics
B.A., Harvard College; Ph.D., University of California.

FLYE, RICHARD C. (1950)........Assistant Professor of Music
B.A., University of Virginia; M.A., and Professional Diploma, Columbia University.

FOLGER, SHIRLEY A. (Mrs. J.) (1967)........Lecturer in Education
B.A., Westmont College, Calif.; graduate study, San Diego State College.

FORD, DAVID H. (1967)........Assistant Professor of Education
B.A., M.Ed., University of Arizona; D.Ed., University of Oregon.

FORD, RICHARD F. (1964)........Assistant Professor of Biology
B.A., Pomona College; M.A., Stanford University; Ph.D., University of California, San Diego.

FORMAN, ROBERT B. (1963)........Associate Professor of Music
B.M.E., University of Kansas; M.A., Teachers College, Columbia University; Ed.D., Florida State University.

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*On leave, fall 1967–68.
‡On leave, year 1967–68.

FORNOFF, FREDERICK H. (1967) Assistant Professor of Spanish
B.A., University of New Mexico; M.A., doctoral candidate, University of North Carolina.

‡FOUNTAIN, LEONARD D. (1960) Associate Professor of Mathematics
A.B., S.M., University of Chicago; Ph.D., University of Nebraska.

FOX, KATHLEEN (1962) Assistant Professor of Physical Education
B.S., Kansas State Teachers College; M.A., State University of Iowa; Ph.D., University of Southern California.

FRANKLIN, ROBERT J. (1967) Assistant Professor of History
B.A., Greenville College; M.A., University of Michigan; additional graduate study, California State College at Los Angeles and University of Southern Cailfornia.

FRANZ, EDWARD P. (1965) Assistant Professor of Physical Education
B.S., M.A., Washington University.

FREY, LEONARD H. (1956) Professor of English
A.B., Dartmouth College; M.A., Ph.D.. University of Oregon.

FRIEDMAN, ABRAHAM M. (1963) Assistant Professor of Physical Education
B.S., Springfield College, Massachusetts; graduate study, Columbia University, School of Social Work; M. A., San Diego State College.

FRIEDRICH. KURT (1949) Professor of Education
A.B., Columbia College; M.A. Columbia University; Ed.D., Columbia Teachers College.

FRODERBERG, ALBERT J. (1967) Assistant Professor of Mathematics
B.Sc., M.Sc., Ph.D., University of Washington.

FULKERSON, E. GLEN (1954) Coordinator of Audio-Visual Services; Professor of Education
B.E., Southern Illinois University; M.A., Ed.D., University of California at Los Angeles.

FUTCH, DAVID G. (1967) Assistant Professor of Biology
B.A., University of North Carolina; M.A., Ph.D., University of Texas.

GALBRAITH, OLIVER, III (1955) Assistant Professor of Management
B.S., M.B.A., Northwestern University; additional graduate study at University of California at Los Angeles.

GALLO, PHILIP S., JR. (1963) Associate Professor of Psychology
B.A., M.A., University of California, Santa Barbara; Ph.D., University of California, Los Angeles.

GALLUP, AVERY H. (1952) Professor of Botany
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.

GARDNER, LYNN J. (1967) Assistant Professor of Spanish
B.A., M.A., Brigham Young University; Ph.D. candidate, University of California, Los Angeles.

GARRISON, JOHN D. (1956) Professor of Physics
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

GARY, FRANKLIN (1966) Lecturer in English
A.B., Princeton University; B. Litt., Oxford University.

GAST, DAVID K. (1963) Assistant Professor of Education
B.A., Occidental College; M.A., Arizona State College, Flagstaff; Ed.D., Arizona State University.

GASTIL, R. GORDON (1959) Professor of Geology
A.B., Ph.D., University of California.

GATES, GERALD F. (1955) Professor of Education
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.

GEGA, PETER C. (1955) Professor of Education
A.B., M.S., Ed.D., University of Southern California.

GELFAND, CAROL E. (Mrs. D.) (1967) Assistant Professor of Social Work
A.B., Stanford University; M.A., Southern Methodist University.

‡GELLENS, JAY H. (1961) Associate Professor of English
B.A., Kenyon College; M.A., Ph.D., Yale University.

*GENERALES, MINOS D. (1949) Professor of Political Science
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.

GENZLINGER, CLEVE K. (1957) Professor of Music
B.M., M.M., University of Nebraska; additional graduate study at Teachers College, Columbia University.

GHILBERT, JEANNE S. (Mrs. H.) (1965) Assistant Professor of French
B.A., B.Ed., University of Puget Sound; M.A., and additional graduate study, University of Washington.

GHORPADE, JAISINGH V. (1965) Assistant Professor of Management
B.A., University of Poona, India; M.B.A., Ph.D. candidate, University of California, Los Angeles.

GIBSON, ERNEST DANA (1947) Professor of Business Education
B.S., University of Minnesota; M.A., Colorado State College of Education; Ed.D., New York University.

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*On leave, fall 1967–68.

‡On leave, year 1967–68.

GIFFORD, ADAM (1954)..........Professor of Economics
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.

GILBERT, CLAUDE L. (1967)..........Assistant Professor of Physical Education
B.A., M.A., San Jose State College.

GILBERT, MARGARET L. (Mrs. A. V.) (1958)..........Administrative Analyst
A.B., San Diego State College.

GILBERT, VERNE V. (1965)..........Assistant Professor of Accounting
B.S., M.B.A., Syracuse University. Certified Public Accountant.

*GILLETTE, THOMAS L. (1961)..........Associate Professor of Sociology
A.B., University of Missouri; M.A., University of Kansas City; Ph.D., University of North Carolina.

GINDLER, HERBERT A. (1960)..........Associate Professor of Mathematics
B.B.A., University of Minnesota; Ph.D., University of California at Los Angeles.

GIVENS, PAULINE W. (Mrs. W.) (1963)..........Assistant Professor of Education
A.B., Western Kentucky State Teachers College; M.A., Butler University.

GJERDE, CLAYTON M. (1948)..........Dean of Extended Services and Summer Sessions; Professor of Education
A.B., Augsburg College; M.A., Ph.D., University of Minnesota.

GLASGOW, JANIS M. (1962)..........Assistant Professor of French
B.A., Western Reserve University; M.A., University of Wisconsin; Ph.D., University of California, Los Angeles.

GODWIN, PATRICIA-ILEEN (Mrs. J.) (1967)..........Lecturer in French
B.A., M.A., University of California, Santa Barbara.

GOLDKIND, VICTOR (1961)..........Associate Professor of Anthropology
B.S., George Washington University; M.A., Ph.D., Michigan State University.

GOLDSTEIN, HOWARD (1965)..........Assistant Professor of Social Work
A.B., M.S.W., and additional graduate study, University of Southern California.

GOODRICH, MARGRIT (Mrs. M.) (1966)..........Assistant Professor of Nursing
B.S., M.A., New York University.

GOTTLIEB, JUDITH M. (1967)..........Placement Counselor
A.B., San Diego State College.

GOVERNALI, PAUL (1956)..........Professor of Physical Education
B.A., Columbia College; M.A., Ed.D., Teachers College, Columbia University.

GRAHAM, JACK A. (1967)..........Counselor
B.A., Central Washington State College; M.A., Washington State University; Ed.D., Arizona State University.

GRANGER, BENJAMIN P. (1966)..........Assistant Professor of Social Work
B.A., Whittier College, M.S.W., M.S., University of Southern California.

GRANRUD, CAROLYN A. (1960)..........Assistant Catalog Librarian
B.A., St. Olaf College; B.S. in L.S.. University of Minnesota.

GRAVES, LAWRENCE E. (1967)..........Assistant Professor of Business Education
A.B., San Diego State College; M.A., University of North Carolina.

GRAWUNDER, RALPH M. (1955)..........Professor of Health Education
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.

GRAY, ROBERT T. (1956)..........Professor of Education
A.B., M.Ed., Ed.D., University of Kansas.

GREENE, JOANNE H. (1967)..........Assistant Catalog Librarian
B.A., Cornell University; M.S.L.S., University of Southern California.

GREENE, LAWRENCE R. (1967)..........Humanities Librarian
B.A., B.L.S., M.A., University of California.

GREENWOOD, NED H. (1964)..........Assistant Professor of Geography
B.S., M.S., Brigham Young University; Ph.D., Ohio State University.

GRIFFIN, RONALD W. (1967)..........Assistant Professor of Social Work
B.A., Texas Technological College; B.S., Golden Gate Baptist Seminary; M.S.S.W., University of Texas; Ph.D., Florida State University.

GRIPP, RICHARD C. (1958)..........Professor of Political Science
A.B., Whittier College; A M., Ph.D., University of Southern California.

‡GROFF, PATRICK J. (1955)..........Professor of Education
B.S., M.S., University of Oregon; Ed.D., University of California.

GROOVER, DARRYL G. (1966)..........Instructor in Art
B.F.A., M.A., Kent State University; M.F.A., University of Arizona.

GROSS, GEORGE C. (1961)..........Associate Professor of English
A.B., M.A., San Diego State College; Ph.D., University of Southern California.

GROSSBERG, JOHN M. (1962)..........Associate Professor of Psychology
A.B., Brooklyn College; M.A., Ph.D., Indiana University.

GRUBBS, EDWARD J. (1961)..........Associate Professor of Chemistry
A.B., Occidental College; Ph.D., Massachusetts Institute of Technology.

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*On leave, fall 1967–68.
‡On leave, year 1967–68.

GULICK, SIDNEY L. (1945) .... Dean of Arts and Sciences; Professor of English
B.A., M.A., Oberlin College; Ph.D., Yale University.

GUNDERSON, MAXINE M. (Mrs. E.) (1966) .... Assistant Professor of Psychology
B.S., University of Chicago; M.A., Ph.D., University of California, Los Angeles.

GUTOWSKI, JULIUS P., JR. (1967) .... Instructor in Physical Education
A.B., San Diego State College.

GUZZETTA, CHARLES J. (1964) .... Associate Professor of Social Work
B.S., M.S., University of the State of New York; M.S.S., University of Buffalo; Ed.D., Temple University.

HAAK, HAROLD H. (1962) .... Associate Professor of Political Science
B.A., M.A.. University of Wisconsin; Ph.D., Princeton University.

HAAS, ROBERT W. (1967) .... Assistant Professor of Marketing
B.B.A., St. Bonaventure University; M.S., D.B.A. candidate, Arizona State University.

HAFFLY, MARILYN (Mrs. D. B.) (1965) .... Assistant Professor of Recreation
B.A., Ohio Wesleyan University; M.A., University of North Carolina; additional graduate study, Indiana University.

HALE, E. ALAN (1957) .... Professor of Marketing
B.A., Gustavus Adolphus College; M.A., Ph.D., University of Illinois.

HALFAKER, PHILIP (1962) .... Associate Professor of Education
B.S., M.A., Ball State Teachers College; Ed.D., Indiana University.

HALL, SIDNEY E. (1964) .... Assistant Professor of Physical Education
B.A., M.A., College of the Pacific.

HAMMER, GERALD K. (1963) .... Assistant Professor of Industrial Arts
B.S., M.S., Bradley University; Ed.D., University of California, Los Angeles.

HAMPTON, DAVID R. (1964) .... Associate Professor of Management
A.B., University of Michigan; M.B.A., University of Southern California; Ph.D., Columbia University.

HANCHETT, WILLIAM F., JR. (1956) .... Professor of History
A.B., Southern Methodist University; M.A., Ph.D., University of California.

HANSEN, BRIAN K. (1967) .... Assistant Professor of Speech Arts
B.A., University of California, Los Angeles; M.A., Cornell University; Ph.D., University of Minnesota.

HANSON, CHARLES L. (1966) .... Aztec Center Coordinator
B.A., University of Redlands; M.B.A., University of California, Los Angeles.

HANSON, ROBERT F. (1962) .... Associate Professor of Recreation
B.A., M.A., Washington State University; Rec.D., Indiana University.

HARARI, HERBERT (1966) .... Assistant Professor of Psychology
B.A., M.S., Ph.D., University of Miami.

HARDER, DONALD F. (1960) .... Dean of Counseling and Testing
B.S., M.S., Ed.D., University of Kansas.

HARMON, JAMES E. (1964) .... Assistant Professor of Political Science
A.B., M.S., San Diego State College.

HARNED, W. WALLACE (1962) .... Associate Professor of Accounting
A.B., Asbury College; M.B.A., University of Kentucky; Ph.D., University of California, Los Angeles.

HARPER, ANN J. (Mrs.) (1965) .... Assistant Professor of Social Work
B.A., M.A., University of Wisconsin; M.S.W., Smith College.

HARPER, LEROY A. (1959) .... Professor of Health Education
B.S., M.S., Emporia State Teachers College; Ed.D., Teachers College, Columbia University.

HARRINGTON, AWONA W. (1949) .... Sciences Librarian
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.

HARRINGTON, NEIL J. (1948) .... Professor of Chemistry
B.S., Monmouth College; M.A., San Diego State College; Ed.D., Colorado State College of Education.

HARRIS, RICHARD A. (1959) .... Assistant Professor of Speech Arts
B.A., College of Wooster; M.A., Ph.D., Indiana University.

HARRIS, VINCENT C. (1950) .... Professor of Mathematics
B.A., M.A., Ph.D., Northwestern University.

HARRISON, ROBERT C. (1953) .... Professor of Psychology
B.S., M.S., Ph.D., University of Washington.

HARTIGAN, SELWYN C. (1946) .... Business Manager
A.B., San Diego State College.

HARVEY, A. R. (1949) .... Professor of Mathematics
B.S., Bates College; A.M., Ph.D., Harvard University.

HARWOOD, ROBERT D. (1928) .... Professor of Zoology
A.B., Pomona College; Ph.D., Cornell University.

HASKELL, HARRIET (1940, except 1943-45) .... Professor of English
A.B., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

HAWORTH, GLENN O. (1966)..........Assistant Professor of Social Work
A.B., San Diego State College; M.S.W., D.S.W., University of California.

HAYES, JOANN S. (Mrs.) (1967)..........Assistant Professor of Sociology
B.A., M.A., and additional graduate study, University of Texas.

HAZEN, WILLIAM E. (1962)..........Associate Professor of Biology
B.S., St. Lawrence University; M.S., Ph.D., University of Michigan.

HEAD, GERALD L. (1964)..........Assistant Professor of Spanish and Portuguese
B.A., Ph.D., University of California, Los Angeles.

HELLBERG, LARS H. (1956)..........Professor of Chemistry
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HENDRICKSON, RICHARD H. (1963)..........Assistant Professor of English
B.A., University of California, Santa Barbara; M.S., University of Wisconsin; Ph.D., University of Connecticut.

HERRMANN, H. HORST (1967)..........Assistant Professor of German
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HIGGINS, WINIFRED H. (Mrs. J.) (1964)..........Assistant Professor of Art
B.S., Massachusetts College of Art; M.A. (History), Boston College Graduate School; M.A. (Art History), Boston University; Ph.D., University of California, Los Angeles.

HILL, HOWARD (1967)..........Assistant Professor of Music
B.A., University of Washington; M.A., Teachers College, Columbia University.

HILL, PATRICIA J. (Mrs. J.) (1964)..........Assistant Professor of Education
A.B., M.A., San Diego State College.

HILL, WAYNE O. (1955)..........Professor of Education
B.A., M.Ed., Eastern Washington College of Education; Ed.D., Stanford University.

HIMES, JOAN K. (1967)..........Assistant Professor of Nursing
B.S., University of California, San Francisco; M.N. candidate, University of Washington.

HINKLE, JAMES C. (1961)..........Assistant Professor of English
B.A., Denison University; M.A., and doctoral candidate, Harvard University.

HIPPAKA, WILLIAM H. (1957)..........Professor of Business Law and Real Estate
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HIRD, ROBERT C., II (1967)..........Assistant Professor of Business Law and Finance
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B.Sc., Ordnance Engineering College, China; Sc.M., Virginia Polytechnic Institute; Ph.D., Brown University.

HOBBS, JOHN A. (1964)..........Assistant Professor of Political Science
A.B., M.A., University of Illinois; Ph.D., Princeton University.

HODGE, GLENN L. (1953)..........Professor of Management
B.S., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University.

HOFFMAN, RICHARD A. (1967)..........Lecturer in Art
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HOGG, MERLE E. (1962)..........Associate Professor of Music
B.S.Ed., B.S.Mus., Kansas State Teachers College; M.A., M.F.A., Ph.D., State University of Iowa.

HOIDAL, ODDVAR K. (1967)..........Assistant Professor of History
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HOLMAN, DOROTHY J. (Mrs.) (1966)..........Assistant Professor of Education
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HOLMES, CALVIN V. (1956)..........Professor of Mathematics
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HOLOWACH, FRANK S. (1960)..........Assistant Professor of Journalism
B.S., Edinboro State Teachers College, Pennsylvania; M.A., State University of Iowa.

HOLT, HOWARD B. (1961)..........Associate Professor of Education
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HOOVER, GRACE V. (1956)..........Assistant Sciences Librarian
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HOPKINS, JACK R. (1961)..........Associate Professor of Art
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HOSTETLER, DAVID K. (1966)..........Counselor
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HOUSEMAN, RICHARD A. (1948)..........Professor of Education
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HOWARD, EDGAR J. (1966)..........Assistant Professor of Mathematics
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†HOWARD, ROY J. (1963)........Associate Professor of Philosophy
B.A., Lic. Phil., Woodstock College, Maryland; Ph.D., Louvain University, Belgium.

HUFFER, CHARLES M. (1961)........Professor of Astronomy
A.B., Albion College; A.M., University of Illinois; Ph.D., University of Wisconsin.

HUFFMAN, EDWARD W. (1955)........Professor of Zoology
B.S., M.S., University of Illinois; Ph.D., Ohio State University.

HUFFORD, LYLE E. (1967)........Assistant Professor of Psychology
A.B., M.S., San Diego State College; Ph.D., University of Arizona.

HULS, HARRY E. (1961)........Associate Professor of Education
B.S., St. Cloud State Teachers College; M.A., Ph.D., University of Minnesota.

HULST, JACK R. (1967)........Assistant Director of Placement
B.A., Kalamazoo College; M.A., San Diego State College.

HUNRICHS, WILLIAM A. (1957)........Professor of Psychology
B.A., M.A., Ph.D., Stanford University.

HUNSAKER, DON, II (1960)........Professor of Zoology
B.A., M.S., Texas Technological College; Ph.D., University of Texas.

HUNT, RITA V. (Mrs. C.) (1965)........Assistant Professor of Nursing
R.N., St. Elizabeth's Hospital, Youngstown, Ohio; B.S., New York University; M.S. candidate, University of California, Los Angeles.

§HUNTER, JAMES J., JR. (1946)........Professor of Education
A.B., Cornell University; M.S., Ph.D., Syracuse University.

HUNTER, LAWRENCE B. (1963)........Assistant Professor of Art
B.A., San Diego State College; M.A., University of California, Los Angeles.

HURD, LYMAN C.. III (1958)........Associate Professor of Music
A.B., M.M., Syracuse University.

IKEDA, HITOSHI (1960)........Associate Professor of Education
B.A., University of Hawaii; M.A., Iowa State Teachers College; Ed.D., University of New Mexico.

INGHAM, MURIEL B. (1967)........Assistant Professor of English
B.A., Willamette University, M.A., Ph.D., University of California, Riverside.

INSKEEP, JAMES E., JR. (1960)........Associate Professor of Education
B.S., U.S. Naval Academy; M.A., San Diego State College; Ph.D., University of Minnesota.

*IRGANG, FRANK J. (1956)........Professor of Industrial Arts
B.S.. Central Michigan College: M.A.. Ph.D.. University of Michigan.

ISENSEE, ROBERT W. (1948)........Professor of Chemistry
A.B., Reed College; M.A., Ph.D., Oregon State College.

‡IZAWA, CHIZUKO (1965)........Assistant Professor of Psychology
B.A., University of Tokyo; M.A., Ph.D., Stanford University.

‡JAMESON, DAVID L. (1957)........Professor of Biology
B.S., Southern Methodist University; M.A., Ph.D., University of Texas.

JAMESON, K. CHARLES (1965)........Assistant Professor of Speech Arts
B.A., M.A., University of Michigan.

JANSSEN, HENRY L. (1953)........Professor of Political Science
B.A., M.A., University of Oklahoma; Ph.D., University of California.

‡JENCKS, CLINTON E. (1964)........Associate Professor of Economics
B.A., University of Colorado; M.A., Ph.D., University of California.

JENSEN, REILLY C. (1958)........Professor of Chemistry
B.S., M.S., University of Nevada; Ph.D., University of Washington.

JOHNS, DAVID H. (1965)........Assistant Professor of Political Science
A.B., Dartmouth College; M.A., Ph.D., University of Chicago.

JOHNS, GERALD E. (1967)........Assistant Catalog Librarian
B.A., University of California, Santa Barbara; M.S.L.S., University of California, Los Angeles.

JOHNSON, ALBERT W. (1964)........Associate Professor of Biology
B.S., Colorado Agriculture and Mechanical College; M.S., Ph.D., University of Colorado.

JOHNSON, BEVERLY M. (Mrs. A. W.) (1964)........Associate Director of Libraries, Technical Services
B.A., University of Alaska; M.A.L.S., University of California, Los Angeles.

JOHNSON, C. DALE (1963)........Associate Professor of Sociology
B.A.. M.A.. Ph.D.. University of Minnesota.

JOHNSON, ELIZABETH B. (1966)........Assistant Professor of Speech Arts
B.A., University of Washington; M.S., Syracuse University.

JOHNSON, EULALIA G. (1962)........Associate Professor of Nursing
B.S., Mount St. Mary's College; M.S., University of Colorado.

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*On leave, fall 1967–68.
†On leave, spring 1967–68.
‡On leave, year 1967–68.
§Assigned duty in Brazil, 1967–68.

JOHNSON, JOSEPH S. (1967)........Assistant Professor of Speech Arts
B.A., University of Utah; graduate study, Michigan State University.

JOHNSON, PHILIP E. (1958)........Professor of Engineering
B.S.C.E., University of Idaho; M.S.C.E., University of California. Registered Civil Engineer.

JONES, DAVID T. (1967)........Assistant Professor of Mathematics
B.Sc., Ph.D., University College of Wales.

JONES, KENNETH K., JR. (1948)........Professor of Speech Arts
B.S., Northwestern University; M.A., Stanford University.

JONES, LORRAINE R. (Mrs.) (1966)........Assistant Catalog Librarian
B.A., New York University; M.S.L.S., University of Southern California.

JONES, WALTER D. (1962)........Associate Professor of Chemistry
B.S., University of Washington; Ph.D., Oregon State College.

JORDAN, G. RAY, JR. (1966)........Assistant Professor of Philosophy
A.B., Duke University; M.A., Ph.D., University of Southern California.

JOSEPH, LIONEL (1947)........Professor of Chemistry
B.S., St. Louis University; M.S. Ph.D., Washington University.

JOY, NED V. (1953)........Professor of Political Science
A.B., Ph.D., University of California.

JOYCE, JERRY J. (1965)........Assistant Placement Officer
B.S., San Diego State College.

JULIAN, JAMES L. (1951)........Professor of Journalism
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.

JUTKOWITZ, JOEL M. (1967)........Assistant Professor of Political Science
A.B., Dartmouth College; M.A., Ph.D. candidate, Yale University.

KAATZ, JAMES M. (1967)........Assistant Professor of Education
B.A., Andrews University; M.A., California State College at Long Beach; Ed.D. candidate, University of Southern California.

KAHN, MARION J. (Mrs.) (1967)........Assistant Professor of Social Work
B.A., Queens College; M.S., University of Wisconsin.

KAHNG, TAE JIN (1962)........Associate Professor of Political Science
B.A., Kent State University; M.A., Ph.D., Columbia University.

KAMALI, MOHAMAD R. (1967)........Assistant Professor of Education
B.A., M.A., San Francisco State College; Ph.D., University of Oregon.

KAPLAN, OSCAR J. (1946)........Professor of Psychology
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

KAREN, ROBERT L. (1964)........Associate Professor of Psychology
B.A., M.A., University of California, Los Angeles; Ph.D., Arizona State University.

KASCH, FREDERICK W. (1948)........Professor of Physical Education
B.S., M.S., University of Illinois; Ed.D , New York University.

KASS, NORMAN (1961)........Associate Professor of Psychology
B.A., M.A., Ph.D., Western Reserve University.

KASTON, BENJAMIN J. (1964)........Visiting Lecturer in Zoology
B.S., North Carolina State College; Ph.D., Yale University.

KEEN, ELMER A. (1967)........Assistant Professor of Geography
B.A., M.A., Peabody College; Ph.D., University of Washington.

KELLER, KARL (1966)........Assistant Professor of English
B.A., M.A., University of Utah; Ph.D., University of Minnesota.

KELLY, BEATRICE L. (1967)........Assistant Professor of Microbiology
A.B., University of California; M.A., University of California, Los Angeles; Ph.D., University of Southern California.

KELM, DONALD L. (1965)........Activities Adviser
A.B., San Diego State College.

KEMP, MAUDE VON P. (1964)........Associate Professor of Social Work
A.B., Wittenberg College, Ohio; M.A., Johns Hopkins University.

KENDALL, W. LLOYD (1961)........Associate Professor of Education
B.S., Wayne State University; M.A., Miami University, Ohio; Ed.D., University of Maryland.

KENNEDY, CHESTER B. (1937)........Professor of English
A.B., Chico State College; M.A., Ph.D., Stanford University.

KENNEDY, EUEL W. (1964)........Lecturer in Mathematics
B.S., East Central State College, Oklahoma; M.S. candidate, University of Utah.

KENNEDY, WILL C. (1967)........Assistant Professor of Sociology
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KENNEY, LOUIS A. (1961)........Director of Libraries
A.B., Nebraska State Teachers College; B.S. in L.S., M.S. in L.S., University of Illinois; graduate study, University of Zurich; Ph.D., University of Maryland.

KIDWELL, WILLIAM M. (1949)........Director of Placement and Financial Aids; Professor of Psychology
B.A., M.S., University of Oregon; Ed.D., Stanford University.

KIEWIET DE JONGE, ENGBERT J. C. (1963)........Associate Professor of Geography
B.A., M.A., Ph.D., Clark University.

KILLION, JOHN J. (1955)........Physician and Surgeon
B.A., University of Minnesota; M.D., University of Tennessee School of Medicine.

KINNON, WILLIAM D. (1956)........Professor of Psychology
B.S., Boston University; M.Ed., Trinity University; M.A., Ph.D., University of Denver.

KINSEY, MARGARET E. (Mrs. F. E.) (1961)........Circulation Librarian
A.B., Florida State University; A.B. in L.S., University of North Carolina; M.A., Northwestern University.

KIRBY, BERNARD C. (1954)........Professor of Sociology
A.B., Denison University; M.A., Ph.D., University of Washington.

KITCHEN, JAMES D. (1957)........Professor of Political Science
B.A., M.A., Ph.D., University of California at Los Angeles.

KITZINGER, ANGELA M. (1945)........Professor of Health Education
A.B., Barnard College, Columbia University; M.A., Teachers College, Columbia University; Ph.D., University of Southern California.

KLANN, CORINNE F. (1962)........Assistant Professor of Education
B.A., Western Washington College; M.A., Teachers College, Columbia University.

‡KLAPP, ORRIN E. (1948)........Professor of Sociology
M.A., Ph.D., University of Chicago.

KLEMER, ELIZABETH J. (1953)........Associate Professor of Education
B.E., National College of Education; M.A., George Peabody College; graduate study at Teachers College, Columbia University and Stanford University.

KNUDSEN, RICHARD I. (1967)........Foreign Student Adviser
B.S., University of Minnesota; B.Th., Augsburg Seminary; M.A., University of Minnesota; S.T.D., Lutheran School of Theology, Chicago.

KNUTH, CLARENCE P. (1965)........Assistant Professor of Geography
A.B., M.A., Ph.D. candidate, University of Michigan.

KOESTER, GEORGE A. (1950)........Executive Dean; Professor of Education
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.

KOPP, ROBERT P. (1966)........Assistant Professor of Mathematics
B.S., University of Chicago; M.S., University of Illinois; Ph.D., University of Michigan.

KOPPMAN, JERRY W. (1963)........Associate Professor of Psychology
B.S., University of Kentucky; A.M., Ph.D., University of Illinois.

KOZLIK, LUDEK A. (1965)........Assistant Professor of Russian
B.A., M.A., Ph.D., University of Texas.

KURTZ, DONALD V. (1967)........Assistant Professor of Anthropology
B.A., M.A., University of California; Ph.D. candidate, University of California, Davis.

KVARDA, BETTY L. (Mrs. R.) (1962)........Associate Professor of Mathematics
B.S.Ed., B.A., Bowling Green State University; M.A., Ohio State University; Ph.D., Oregon State University.

LAIHO, ETHEL E. (1964)........Assistant Professor of Nursing
Diploma, Mount Zion Hospital School of Nursing, San Francisco; A.B., San Francisco State College; M.S., University of Oregon.

LAMB, ALMA S. (Mrs. G. F.) (1962)........Assistant Education Librarian
B.S., University of Alabama.

LAMBERT, ARTHUR A. (1960)........Associate Professor of Music
B.S., M.A., M.F.A., Ph.D., State University of Iowa.

LA MONICA, GRACE (Mrs. J.) (1966)........Assistant Professor of Nursing
R.N., St. Francis School of Nursing; B.S., University of Connecticut; B.S., University of California; M.S. (Public Health Nursing) University of California, Los Angeles.

LANDIS, VINCENT J. (1954)........Professor of Chemistry
B.S., Washington State College; Ph.D., University of Minnesota.

LANE, GAIL E. (Mrs.) (1966)........Financial Aids Counselor
A.B., San Diego State College.

LANG, MARTIN T. (1964)........Assistant Professor of Mathematics
B.A., North Central College, Illinois; M.A., University of Kansas.

LANGENBACH, ROBERT G. (1959)........Associate Professor of Business Education
B.A., M.A., Montana State University; Ed.D., University of California at Los Angeles.

LA PRAY, MARGARET H. (1959)........Professor of Education
B.S., M.A., University of Minnesota; Ph.D., Cornell University.

LARRABEE, JOHN A. (1966)........Physician and Surgeon
A.B., University of Nebraska; M.D., University of Chicago.

LAWS, M. ELIZABETH (Mrs.) (1965)........Assistant Professor of Nursing
Diploma, St. Mary's School of Nursing, Astoria, Oregon; B.S., M.S., University of California, Los Angeles.

LAWSON, RICHARD H. (1957)........Professor of German
B.A., M.A., University of Oregon; Ph.D., University of California at Los Angeles.

LEASURE, J. WILLIAM (1962)........Associate Professor of Economics
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‡On leave, year 1967–68.

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LEE, GORDON F. (1958)..........Publications and Public Relations Officer
A.B., Drew University; M.S., Columbia University.

LEE, PHOEBE J. (1960)..........Associate Professor of Nursing
Diploma, B.S., Stanford University School of Nursing; M.S., University of California at Los Angeles.

LEE, ROBERT E. (1956)..........Associate Professor of Speech Arts
B.A., M.A., University of Nebraska.

LEE, WILLIAM F. (1965)..........Associate Professor of Social Work
B.A., San Francisco State College; M.S.W., D.S.W., University of California.

LEERHOFF, RUTH E. (1964)..........Serials Librarian
B.A., Iowa State Teachers College; M.A., University of Denver.

‡LEIFFER, DONALD B. (1948)..........Professor of Political Science
A.B., University of California at Los Angeles; M.A., Ph.D., Harvard University.

LEMBECK, MICHAEL E. (1966)..........Lecturer in Physical Science
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LEMME, MAURICE M. (1948)..........Dean of the Graduate Division; Professor of Mathematics
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.

LEMUS, GEORGE (1960)..........Associate Professor of Spanish
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LEONARD, LINDA S. (Mrs. E.) (1967)..........Assistant Professor of Philosophy
B.S., Temple University; M.A., University of Colorado; Ph.D., Duquesne University.

LEONHARDT, HORST R. (1967)..........Assistant Professor of Chemistry
B.S., M.A., Ph.D., Technische Hochschule, Stuttgart, Germany.

LEUKEL, FRANCIS P. (1956)..........Professor of Psychology
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.

LEVENSON, STANLEY (1967)..........Assistant Professor of Education
B.S., Oswego State Teachers College; M.A., University of California, Los Angeles; Ph.D. candidate, Stanford University.

LEVINE, JOSEPH R. (1965)..........Assistant Professor of Psychology
B.A., Brooklyn College; M.A., Ph.D., Michigan State University.

LEWIN, HARLAN J. (1967)..........Assistant Professor of Political Science
A.B., Harvard College; M.A., Ph.D. candidate, University of California.

LEWIS, HENRY T., JR. (1964)..........Assistant Professor of Anthropology
A.B., Fresno State College; Ph.D., University of California.

LEWIS, KATHRYN (1962)..........Assistant Professor of Physical Education
B.S., Brigham Young University; M.A., Long Beach State College.

LIENERT, CHARLES (1954)..........Professor of Education
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.

LIGHTNER, KEVIN M. (1968)..........Assistant Professor of Accounting
B.S., San Jose State College; M.B.A., doctoral candidate, University of California, Los Angeles.

LIN, MAO-SHIU (1966)..........Assistant Professor of Engineering
B.S.E., National Taiwan University, Taiwan; M.S.E., Ph.D., University of Michigan.

LINDGREN, DONALD A. (1965)..........Assistant Professor of Marketing
B.B.A., M.B.A., Ph.D., University of Wisconsin.

‡LINGREN, PAUL A. (1957)..........Associate Professor of Art
B.A., University of California, Santa Barbara College; M.A., University of California at Los Angeles.

LINLEY, JAMES M. (1945)..........Professor of Education
Ph.B., University of Chicago; M.S., Ph.D., University of Southern California.

LINTON, MARIGOLD L. (Mrs.) (1964)..........Assistant Professor of Psychology
B.A., University of California, Riverside; M.A., State University of Iowa; Ph.D., University of California, Los Angeles.

LIVINGSTON, ROBERT S. (1967)..........Professor of Chemistry
B.S., M.S., Ph.D., University of California.

LOCKMAN, EVELYN, (1948)..........Associate Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University, and University of Wisconsin; additional special study in dance.

LODGE, CHESTER R. (1954)..........Professor of Engineering
B.S.E.E., M.S., Ph.D., State University of Iowa.

LOGAN, HOPE S. (Mrs. L.) (1967)..........Assistant Professor of Social Work
B.A., University of California, Los Angeles; M.S.W., University of California.

LONGENECKER, MARTHA W. (Mrs. J. I.) (1955)..........Professor of Art
B.A., University of California at Los Angeles; M.F.A., Claremont Graduate School.

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‡On leave, year 1967–68.

LOOMIS, DAVID M. (1961)........Assistant Professor of Music
B.M., Westminster Choir College; M.M., and additional graduate study, Indiana University.

LOPEZ, GENOVEVO C. (1961)........Associate Professor of Mathematics
B.A., Ph.D., University of California at Los Angeles.

LUCE, LAWRENCE W. (1949)........Professor of Industrial Arts
B.S., Illinois Wesleyan University; M.S., Iowa State College; Ed.D., University of California at Los Angeles.

LuPONE, ORLANDO J. (1964)........Assistant Professor of Education
B.S., New York University; M.S., Teacher's College, Columbia University; Ph.D., St. John's University, New York.

LYNN, ELIZABETH (1963)........Assistant Professor of Psychology
B.A., Linfield College, Oregon; M.S., Ph.D., University of Oregon.

MacCLELLAND, JUDITH J. (Mrs. M.) (1967)........Instructor in French
A.B., University of Kansas; M.A.T., Harvard University.

MADSEN, ROY P. (1966)........Assistant Professor of Speech Arts
B.F.A., University of Illinois; M.A., Ph.D., University of Southern California.

MAIRE, JUDITH A. (1967)........Assistant Professor of Nursing
B.S.N., Seattle University; M.N., University of Washington.

MALCOLM, DAVID D. (1953)........Professor of Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.

*MALIK, JIM G. (1957)........Professor of Chemistry
A.B., Wabash College; Ph.D., Michigan State University.

MARCHAND, ERNEST L. (1946)........Professor of English
A.B., M.A., University of Washington; Ph.D., University of Wisconsin.

MARCUS, BERNARD (1966)........Assistant Professor of Mathematics
B.S., M.S., Ph.D., University of Arizona.

MARION, ALAN C. (1965)........Lecturer in Physical Science
A.B., M.S., San Diego State College.

MAROSZ, WANDA A. (Mrs. H.) (1967)........Lecturer in Mathematics
B.S., University of Chicago; M.A., University of Southern California.

MARRIOTT, LOIS I. (Mrs. F. D.) (1966)........Assistant Circulation Librarian
B.A., State University of Iowa; M.A.L.S., University of Wisconsin.

MARSTERS, HAROLD L. (1962)........Assistant Professor of Industrial Arts
B.A., M.A., Chico State College.

MARTIN, MARY F. (1958)........Assistant Professor of Home Economics
B.S., University of Idaho; M.S., Oregon State College.

MATHEWSON, JAMES H. (1964)........Assistant Professor of Chemistry
A.B., Harvard College; M.A., Ph.D., Johns Hopkins University.

MATTOX, PAUL R. (1965)........Assistant Professor of Speech Arts
B.A., Los Angeles State College; M.A., State University of Iowa; Ph.D., University of Southern California.

MATULA, ARTHUR (1964)........Lecturer in English
B.A., Agricultural and Mechanical College of Texas; M.A., Stanford University; additional graduate study, Occidental College.

MAX, STEFAN L. (1964)........Associate Professor of French
B.A., Sir George Williams University, Canada; M.A., McGill University, Montreal; Ph.D., University of California, Los Angeles.

MAXWELL, JEAN M. (1963)........Professor of Social Work
B.A., University of Minnesota; M.S.S., Western Reserve University.

McADAMS, HENRY E. (1966)........Counselor
A.B., Occidental College; A.M., Ph.D., University of Southern California.

McALLISTER, T. WAYNE (1966)........Assistant Professor of Education
B.A., Arizona State University; M.A., University of Denver.

McAMIS, LESSLEY J. (Mrs.) (1963)........Documents Librarian
B.A., University of Southern California.

McBLAIR, WILLIAM (1948)........Associate Professor of Biology
A.B., San Diego State College; Ph.D., University of California.

McCLARD, Q. DONAVON (1966)........Assistant Professor of Education
A.B., M.A., San Diego State College; Ph.D., University of Minnesota.

McCLINTIC, JOSEPH O. (1946)........Professor of Economics
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.

McCLURG, JACK (1962)........Associate Professor of Philosophy
M.D., State University of Iowa; M.A., Ph.D., University of Chicago.

McCOLLOM, IVAN N. (1946)........Professor of Psychology
A.B., Central Washington College of Education; B.S., M.S., University of Oregon; Ed.D., Colorado State College of Education.

McCOY, C. ROBERT (1960)........Assistant Professor of English
B.A., M.A., Drake University.

---

*On leave, fall 1967–68.

McDONALD, ROY D. (1963)........Associate Professor of Psychology
B.A., Ph.D., University of Texas.

McENTYRE, JUDITH S. (Mrs. R. F.) (1966)........Assistant Sciences Librarian
B.S., Stetson University, Florida; M.S.T., Cornell University; M.S.L.S., University of Southern California.

McEOWEN, ROBERT H. (1967)........Assistant Professor of Industrial Arts
B.S., M.S., Abilene Christian College; Ph.D., East Texas State University.

McFALL, JOHN (1966)........Assistant Professor of Marketing
M.A., Glasgow University, Scotland; additional graduate study, University of California, Los Angeles.

McGHIE, ROBERT D. (1967)........Assistant Professor of Engineering
B.S., University of California; M.S.M.E., San Diego State College; Ph.D. candidate, University of California, Davis.

McJUNKINS, THOMAS O. (1959)........Assistant Professor of Sociology
B.S., Arkansas Baptist College; A.B., Morehouse College; M.A., Atlanta University; additional graduate study at Indiana University.

McLEAN, NORMAN, JR. (1965)........Assistant Professor of Zoology
B.S., Ph.D., University of California.

McLEOD, DAN D. (1964)........Assistant Professor of English
B.A., Pomona College; M.A., San Diego State College; additional graduate study, Claremont Graduate School.

†McLONEY, WIRT L. (1949)........Professor of Industrial Arts
A.B., Western State College; M.A., Colorado State College of Education; Ed.D., University of California, Los Angeles.

McMULLEN, JAMES D. (1958)........Associate Professor of Industrial Arts
B.S., M.S., Oregon State College; Ed.D., University of Southern California.

McTAGGART, AUBREY C. (1962)........Associate Professor of Health Education
B.P.E., University of British Columbia; M.S., Ph.D., University of Illinois.

MEADOR, THOMAS C. (1966)........Assistant Professor of Speech Arts
B.A., M.A., Michigan State University.

MELCHIOR, HERBERT R. (1967)........Assistant Professor of Biology
A.B., Middlebury College; M.S., University of New Hampshire; Ph.D. candidate, University of Wisconsin.

MELTON, JOSEPH (1967)........Assistant Professor of Education
B.A., M.Ed., Ed.D., Wayne State University.

MERRILL, JOHN E. (1946)........Professor of History
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.

MERZBACHER, CLAUDE FELL (1947)........Professor of Physical Science
B.S., University of Pennsylvania; M.A., Claremont Graduate School; Ed.D., University of California at Los Angeles. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.

MESSIER, LEONARD N. (1946)........Professor of French
A.B., San Diego State College; M.A., Ph.D., University of California. Officier d'Académie.

MILES, ELIJAH W. (1966)........Assistant Professor of Political Science
A.B., Prairie View Agricultural and Mechanical College, Texas; A.M., Ph.D., Indiana University.

MILLER, ALAN W. (1963)........Assistant Professor of Art
B.A., M.A. and additional graduate study, University of California, Los Angeles.

MILLER, PHILIP C. (1965)........Assistant Professor of Biology
B.A., Oberlin College; M.S., Iowa State University; Ph.D., University of Colorado.

MILLER, RALPH L. (1963)........Associate Professor of Education
B.A., Houghton College, New York; B.D., Th.M., Princeton Theological Seminary; Ph.D., Michigan State University.

MILLHIZER, WILLIAM C. (1967)........Assistant Professor of English
B.A., M.Litt., University of Pittsburgh.

MILLS, JACK (1957)........Professor of Speech Arts
A.B., M.A., University of Florida; Ph.D., University of Illinois.

MILNE, DAVID S. (1946)........Chairman, Division of Social Sciences; Professor of Sociology
A.B., University of California at Los Angeles; M.A., University of Southern California; Ph.D., University of Chicago.

MISHNE, ALAN S. (1956)........Coordinator of Financial Aids
A.B., San Diego State College.

MITCHELL, ARTHUR J. (1963)........Assistant Professor of Education
A.B., Nebraska State Teachers College; M.A., University of Denver; Ed.D., Colorado State College.

MITCHELL, DANLEE G. (1964)........Assistant Professor of Music
B.S., M.S., University of Illinois.

MITTON, DARYL G. (1966)........Lecturer in Management
B.C.E., M.B.A., Ph.D., University of Minnesota.

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†On leave, spring 1967–68.

MOE, CHESNEY R. (1931) Professor of Physics
A.B., M.A., Stanford University; Ph.D., University of Southern California. Registered Electrical Engineer.

MOE, RONALD C. (1967) Assistant Professor of Political Science
B.A., Claremont Men's College; M.A., Ph.D. candidate, Columbia University.

MONTEVERDE, JOHN P. (1954) Professor of English
B.A., M.A., Ph.D., University of California at Los Angeles.

MONTGOMERY, C. GARY (1967) Placement Counselor
A.B., San Diego State College.

MOON, CHARLES R. (1962) Physician and Surgeon
B.S., M.D., University of Arkansas.

MOORE, DANA C. (1966) Lecturer in Education
B.S., Springfield College; M.S., New Mexico Highlands University.

MOORE, HAROLD B. (1960) Professor of Microbiology
A.B., San Diego State College; M.A., Ph.D., University of California at Los Angeles.

MOORE, PATRICIA J. (1964) Assistant Social Sciences Librarian
B.A., M.A.L.S., Immaculate Heart College.

MOREZ, NICHOLAS S. (1967) Assistant Professor of Mathematics
B.S., California Institute of Technology; M.A., Ph.D., University of Colorado.

MORGAN, CHARLES (1949) Professor of Engineering
M.E., Stevens Institute of Technology; M.S., University of California. Registered Professional Mechanical Engineer.

MORRIS, RICHARD H. (1957) Professor of Physics
A.B., Ph.D., University of California.

MOSER, JOSEPH M. (1959) Associate Professor of Mathematics
B.A., St. John's University, Minnesota; M.A., Ph.D., St. Louis University.

MOSES, DOROTHY V. (1958) Professor of Nursing
B.S., P.H.N., M.S., University of California at Los Angeles.

*MOURATIDES, NICOS N. (1960) Associate Professor of Sociology
B.A., Cornell College; M.A., Ph.D., University of Minnesota.

MOYE, KENNETH G. (1965) Lecturer in Engineering
B.A., San Diego State College.

MRACEK, JAROSLAV J. S. (1965) Assistant Professor of Music
M.B., University of Toronto; M.A., Ph.D., Indiana University.

MUNTER, ROBERT L. (1964) Associate Professor of History
B.A., M.A., University of Washington; Ph.D., University of Cambridge.

MURDOCK, DORIS G. (Mrs. G.) (1960) Catalog Librarian
A.B., University of Redlands; B.S. in L.S., University of Illinois.

MURPHY, MARGARET L. (Mrs. S. U.) (1955) Professor of Physical Education
B.A., University of California; M.S., Ed.D., University of Oregon.

MURPHY, ROBERT J. (1964) Assistant Professor of Engineering
B.S.M.E., M.S.M.E., Ph.D., Carnegie Institute of Technology.

MYERS, MABEL A. (1946) Professor of Microbiology
A.B., M.A., Pomona College; Ph.D., Cornell University.

NAIMAN, STEPHEN H. (1966) Assistant Professor of Business Law and Finance
B.A., University of Colorado; LL.B., LL.M., Stanford University.

NARDELLI, ROBERT R. (1953) Professor of Education
B.A., M.A., Arizona State College; Ph.D., University of California.

‡NASATIR, ABRAHAM PHINEAS (1928) Professor of History
A.B., M.A., Ph.D., University of California.

NEEL, JAMES W. (1963) Associate Professor of Biology
B.S., University of California; Ph.D., University of California, Los Angeles.

NELSON, BURT (1957) Professor of Physical Science
B.S., M.S. (Astronomy), M.S. (Philosophy), Ph.D., University of Wisconsin.

NELSON, HILDA B. (Mrs. B.) (1965) Assistant Professor of French
M.A., Ph.D., candidate, University of Wisconsin.

*NELSON, SHERWOOD M. (1956) Professor of Philosophy
A.B., Phillips University; M.A., Ph.D., University of California.

NESVIG, DAVID T. (1967) Counselor
B.A., Pacific Lutheran University; M.S., Ed.D. candidate, Indiana University.

NESVOLD, BETTY A. (Mrs. A.) (1967) Assistant Professor of Political Science
A.B., M.A., San Diego State College; Ph.D. candidate, University of Minnesota.

NEUMAN, DONALD R. (1967) Counselor
B.S., North Central College, Ill.; M.S., Illinois State University; Ph.D. candidate, Michigan State University.

‡NEUNER, EDWARD J., JR. (1957) Professor of Economics
A.B., Brooklyn College; A.M., University of Wisconsin; Ph.D., Columbia University.

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*On leave, fall 1967–68.
‡On leave, year 1967–68.

NEYNDORFF, HANS (1962)……Assistant Social Sciences Librarian
B.S., LL.B., University of Indonesia; Doctorandus, University of Leiden; Library Diploma, Netherlands Institute for Documentation and Research.

NICHOLS, ALAN C. (1964)……Assistant Professor of Speech Arts
B.S., Bowling Green State University; M.A., Ph.D., Ohio State University.

NICHOLS, PAUL F. (1965)……Assistant Professor of Physics
B.S., College of William and Mary; Ph.D., Duke University.

NICHOLS, PRESCOTT S. (1966)……Assistant Professor of English
A.B., M.A., Stanford University; additional graduate study, San Francisco State College and University of Redlands.

‡NOORANY, IRAJ (1963)……Associate Professor of Engineering
B.S.C.E., University of Tehran; M.S.C.E., Ph.D., University of California.

NORDQUIST, BARBARA K. (Mrs. M. H.) (1963)……Assistant Professor of Home Economics
B.S., Oregon State University; M.S., Cornell University.

NORLAND, CALVERT E. (1947)……Associate Professor of Zoology
A.B., Pomona College; M.S., University of California; graduate study at Claremont College.

NORMAN, NELSON F. (1960)……Associate Professor of History
B.A., Stanford University; M.A., Harvard University; M.A., Fresno State College; Ph.D., University of Illinois.

NOWER, LEON (1963)……Associate Professor of Mathematics
B.S., City College of New York; M.S., Ph.D., Stanford University.

NOWLIN, OWEN W. E. (1957)……Physician and Surgeon
B.S., University of Illinois; M.D., University of Illinois College of Medicine.

NYE, NEVA E. (1953)……Professor of Nursing
B.A., University of Michigan; M.Litt., University of Pittsburgh.

NYE, WILLIAM A. (1962)……Associate Professor of Business Law and Finance
B.S., Ph.D., University of Pennsylvania.

O'BRIEN, ALBERT C. (1965)……Assistant Professor of History
A.B., Providence College; A.M.T., Harvard University; doctoral candidate, University of Notre Dame.

O'BRIEN, BOB R. (1966)……Assistant Professor of Geography
B.S., M.A., University of Texas; Ph.D., University of Washington.

O'BRIEN, STEPHEN B., Major, USAF (1966)……Assistant Professor of Aerospace Studies
B.G.E., University of Omaha; graduate study, San Diego State College.

O'BYRNE, ERNEST B. (1954)……Vice President for Administration
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.

†O'DAY, EDWARD F., JR. (1957)……Professor of Psychology
B.S., M.A., Ph.D., University of Florida.

ODENDAHL, ERIC M. (1964)……Assistant Professor of Journalism
B.A., University of New Mexico; M.A., State University of Iowa; Ph.D., University of Missouri.

ODMARK, VERN E. (1952)……Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri; Public Accountant.

OHNYSTY, BASIL (1967)……Assistant Professor of Engineering
B.S., M.S., University of Illinois.

OLSEN, ALBERT W. (1957)……Director of Athletics; Associate Professor of Physical Education
A.B., M.A., San Diego State College; additional graduate study at University of California at Los Angeles and University of Oregon.

OLSEN, LYLE I. (1961)……Associate Professor of Physical Education
A.B., M.A., Chico State College; Ed.D., Teachers College, Columbia University.

OLSON, ANDREW C., JR. (1946)……Professor of Zoology
A.B., San Diego State College; M.S., University of Idaho; Ph.D., Oregon State College.

O'NEAL, H. EDWARD (1961)……Associate Professor of Chemistry
B.A., Harvard College; Ph.D., University of Washington.

ONSTAD, GWEN (Mrs.) (1966)……Counselor
B.S., University of Miami; M.A., Ed. D., Colorado State College.

ONTELL, ROBERT (1965)……Professor of Social Work
A.B., M.S.W., University of California; D.S.W., Columbia University.

ORTH, FREDRICK, J. (1965)……Assistant Professor of Art
B.A., M.F.A., University of Washington.

OSBORNE, RICHARD C. (1963)……Assistant Professor of Mathematics
B.A., University of Alaska; M.S. and additional graduate study, University of Arizona.

OSTEYEE, DAVID B. (1966)……Assistant Professor of Mathematics
B.A., University of California; M.A., University of California, Los Angeles; additional graduate study, University of California.

O'TOOLE, ROGER (1967)……Assistant Professor of Sociology
B.A., Leeds University, England; P.G.C.E., London University, England; M.A., McMaster University, Canada; additional graduate study, University of Toronto.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

PADGETT, L. VINCENT (1956) Professor of Political Science
B.S., Ph.D., Northwestern University.

PALMER, DENNIS (1965) Instructor in French
A.B., Southern Methodist University; graduate study, Yale University and University of California.

PALOMARES. UVALDO H. (1966) Assistant Professor of Education
B.A., Chapman College; M.A., San Diego State College; Ed. D., University of Southern California.

PAPWORTH, FRANK R. (1967) Lecturer in Art
A.B., San Diego State College; M.A., University of California, Los Angeles.

PARKER, CHRISTOPHER E. (1966) Assistant Professor of Psychology
B.A., M.A., San Diego State College; Ph.D., University of California at Los Angeles.

PARSONS, JOHN A. (1965) Assistant Professor of Biology
A.B., Washington and Jefferson College; M.S., Pennsylvania State University; Ph.D., Florida State University.

PATEL, MALVIKA S. (Mrs. S.) (1967) Assistant Professor of Economics
B.A., M.A., The M.S. University of Baroda, India; Ph.D., University of Southern California.

PATTERSON, EMILY H. (Mrs.) (1967) Assistant Professor of English
B.S., Bowling Green State University; M.A., Ph.D., University of Utah.

PATTERSON, SARA E. (Mrs. S. R.) (1967) Assistant Catalog Librarian
B.A., University of Texas, El Paso; M.S.L.S., University of Southern California.

PAULIN , HARRY W. (1962) Associate Professor of German
B.A., North Central College, Illinois; A.M., Ph.D., University of Illinois.

PEIFFER, HERBERT C., JR. (1937) Dean of Students; Professor of Psychology
A.B., University of California at Los Angeles; M.A., Ph.D., Stanford University.

PEISNER, EARL F. (1961) Coordinator of Counseling
B.A., Grinnell College; M.A., State University of Iowa; Ed.D., Oregon State College.

PEMBERTON, LeROY A. (1955) Professor of Business Education
A.B., A.M., Colorado State College; Ed.D., University of California, Los Angeles.

†PENN, ROBERT (1960) Professor of Psychology
B.A., M.A., San Diego State College; Ph.D., Carnegie Institute of Technology.

‡PERKINS, WILLIAM A. (1955) Professor of English
A.B., Ph.D., Stanford University.

†PERSON, GERALD A. (1957) Acting Dean, School of Education; Professor of Education
B.A., Augsburg College; M.Ed., Ph.D., University of Minnesota.

PETERS, LYNN H. (1959) Professor of Management
B.A., LL.B., M.B.A., Ph.D., University of Wisconsin.

PETERSEN, FRANK A. (1966) Assistant Professor of Education
A.B., M.A., San Diego State College.

PETERSON, GARY L. (1963) Associate Professor of Geology
B.A., University of Colorado; M.S., Ph.D., University of Washington.

PETERSON, TENOLD A. (1966) Instructor in Art
B.A., M.A., California State College, Long Beach.

PETTEYS, MANVILLE R. (1957) Coordinator of Extended Services; Professor of Education
B.A., Willamette University; M.A., Ed.D., Stanford University.

PFAFF, PAUL LEWIS (1931) Professor of Speech Arts
A.B., Stanford University; M.A., Ph.D., University of Southern California.

PHELPS, LEROY N. (1966) Assistant Professor of Microbiology
B. Sc., Ohio State University; Ph.D., University of Southern California.

PHILLIPS, GEORGE L. (1947) Professor of English
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.

PHILLIPS, JOHNNIE L. (1965) Assistant Education Librarian
B.A., Loyola University, New Orleans; M.A.L.S., University of Illinois.

PHILLIPS, WILLIAM H. (1963) Associate Professor of Physical Education
A.B., M.A., Ed.D., University of California.

PIERSON, ALBERT C. (1954) Professor of Management
B.L.A.S., University of Illinois; M.B.A., Harvard University; Ph.D., Columbia University. Public Accountant.

PIFFARD, GUERARD (1956) Professor of French
B.A., M.A., Colorado College; Ph.D., Stanford University; post-doctoral study, University of Strasbourg, France.

‡PINCETL, STANLEY J., JR. (1955) Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne), France.

PISERCHIO, ROPERT J. (1966) Assistant Professor of Physics
B.S., M.S., Ph.D., University of Arizona.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

PLATZ, MARVIN H. (1955)......Coordinator of Summer Sessions; Professor of Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.

PLYMALE, HARRY H. (1962)......Associate Professor of Zoology
B.S., D.V.M., Michigan State University.

POILETMAN, ROBERT M. (1966)......Assistant Professor of Health Education
B.S., State University of New York, Cortland; M.A., Stanford University.

POROY, IBRAHIM I. (1967)......Assistant Professor of Economics
Licence in Economics, Istanbul University; M.A., Ph.D., University of California.

POSNER, WALTER H. (1962)......Assistant Catalog Librarian
B.S., Utah State Agricultural College; M.A., Western State College, Colorado; M.A. in L.S., University of Denver.

POST, LAUREN CHESTER (1937)......Professor of Geography
A.B., M.A., Ph.D., University of California.

POVENMIRE, E. KINGSLEY (1946)......Professor of Speech Arts
B.S., Ohio State University; M.F.A., Yale University.

POWELL, DON W. (1953)......Professor of Speech Arts
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.

PRAETORIUS, HUGH M. (1967)......Assistant Professor of Philosophy
A.B., Stanford University; Ph.D. candidate, Claremont Graduate School.

PRESTON, DUDLEY A. (1948)......Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.

PRICE, JOHN A. (1967)......Assistant Professor of Anthropology
B.A., M.A., University of Utah; Ph.D., University of Michigan.

PROUTY, HELEN L. (1950)......Professor of Education
B.S., University of Nebraska; M.A., Ph.D., University of California.

PROVENCHER, RONALD (1966)......Assistant Professor of Anthropology
B.A., University of Missouri; Ph.D. candidate, University of California.

PSOMAS, THEMISTOCLES (1957)......Associate Professor of Psychology
B.A., University of Southern California; Ph.D., University of California.

PTACEK, ANTON D. (1965)......Assistant Professor of Geology
B.S., University of Wisconsin; M.S., Ph.D., University of Washington.

PURCELL, HAROLD I. (1966)......Assistant Professor of Accounting
B.S., University of Arizona; M.S., San Diego State College. Certified Public Accountant.

QUASTLER, IMRE E. (1967)......Assistant Professor of Geography
B.A., Wayne State University; M.A., Northwestern University; Ph.D. candidate, University of Kansas.

QUIETT, FREDRICK T. (1957)......Professor of Engineering
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining).

RADER, DANIEL L. (1954)......Professor of History
A.B., M.A., Ph.D., University of California.

‡RAGEN, KATHERINE M. (1947)......Professor of History
A.B., Penn. College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

RAO, ELESWARAPU N. (1966)......Lecturer in English
B.A., M.A., Andhra University, India; M.A., University of Hawaii; additional graduate study, Universities of Washington, Michigan and California.

RATTY, FRANK J. (1954)......Professor of Biology
B.A., San Diego State College; M.S., Ph.D., University of Utah.

RAUBER, DONALD F. (1967)......Assistant Professor of English
B.A., St. Mary's College, Calif.; M.A., Ph.D., University of Oregon.

RAY, ROBERT C. (1961)......Physician and Surgeon
B.S. (Medical), University of North Dakota; M.D., Northwestern University.

REDDING, ROBERT W. (1966)......Lecturer in English
A.B., Los Angeles State College; M.A., University of California; Ph.D., University of New Mexico.

REED, PETER J. (1967)......Assistant Professor of English
B.A., University of Idaho; M.A., Ph.D., University of Washington.

REED, THELMA R. (Mrs. D.) (1966)......Assistant Professor of Home Economics
B.S., M.A., George Peabody College; Ph.D., Texas Woman's University.

REEL, JANE E. (1958)......Assistant Professor of Education
A.B., M.A., San Diego State College.

REHFUSS, DONALD E. (1962)......Associate Professor of Physics
B.A., Reed College; M.A., Ph.D., University of Oregon.

REID, JASPER B., JR. (1965)......Assistant Professor of History
A.B., M.B.A., M.A., Ph.D., University of Michigan.

REID, THELMA E. (1968)......Assistant Professor of Education
A.B., M.A., University of California.

REINTS, WILLIAM W. (1966)......Assistant Professor of Business Law and Finance
B.S., M.B.A., Oklahoma State University; D.B.A., University of Washington.

---

‡On leave, year 1967–68.

RESNICK, ESTELLE (1966)……Assistant Professor of Psychology
B.A., Brooklyn College; Ph.D., Indiana University.

REZNIKOFF, SIMON (1956)……Professor of Business Law
B.A., University of Missouri; LL.B., Columbia University.

†RICHARDSON, ROBERT W. (1939, except 1946–48)……Professor of Geography
A.B., Ph.D., University of California.

RICHARDSON, WILLIAM H. (1963)……Associate Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Illinois.

RICKMAN, GERALDINE (Mrs. D. C.) (1967)……Assistant to Vice President for Administration
Study at Manhattanville College of the Sacred Heart, New York.

*RIDOUT, LIONEL U. (1946, except 1949–50)……Professor of History
A.B., San Diego State College; M.A., University of California; Ph.D., University of Southern California.

RIEDMAN, RICHARD M. (1962)……Associate Professor of Speech Arts
B.A., M.A., University of Redlands; Ph.D., University of Pittsburgh.

RIGGS, LESTER G. (1950, except 1951-52)……Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.

RINEHART, ROBERT R. (1964)……Associate Professor of Biology
A.B., San Diego State College; Ph.D., University of Texas.

RING, MOREY A. (1962)……Associate Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Washington.

RIVERA, DOROTHY M. (1967)……Assistant Professor of Mathematics
B.A., Mount St. Mary's College; M.S., University of Notre Dame; Ph.D. candidate, Wayne State University.

RIXMAN, EUNICE E. (1960)……Assistant Professor of Education
B.M., Illinois Wesleyan University; M.M., University of Michigan.

ROBERTS, ELLIS E. (1949)……Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.

ROBERTSON, FRANK O. (1953)……Director of Health Services
B.S., M.S., B.S. (Medicine), University of North Dakota; M.D., University of Oregon Medical School.

ROBINSON, DUDLEY HUGH (1928)……Chairman, Division of Physical Sciences; Professor of Chemistry
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.

ROBINSON, LAURIE R. (Mrs.) (1960)……Acquisition Librarian
B.A., Texas Western College; M.A., University of Denver.

RODIN, MIRIAM J. (Mrs. B.) (1966)……Assistant Professor of Psychology
B.A., M.A., Ph.D., University of California, Los Angeles.

RODNEY, JOSEPH A. (1957)……Professor of Education
A.B., M.A., San Diego State College; Ed.M., Ed.D., University of Southern California.

ROEMMICH, HERMAN (1958)……Test Officer
B.A., Jamestown College; M.A., University of Colorado; M.A., Teachers College, Columbia University; Ph.D., University of Washington.

†ROGERS, JOHN J. (1963)……Assistant Professor of Art
B.S., M.S., University of Wisconsin.

ROGERS, PHYLLIS N. (Mrs. R. E.) (1958)……Assistant Professor of Speech Arts
B.A., M.A., University of Michigan.

ROGERS, RICHARD E. (1963)……Assistant Professor of English
B.A., Carleton College, Minnesota; M.A., University of California, Los Angeles; M.A., San Diego State College; additional graduate study, Indiana University.

ROGERS, SPENCER LEE (1930)……Professor of Anthropology
A.B., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.

ROHFLEISCH, KRAMER J. (1947)……Professor of History
A.B., M.A., Ph.D., University of California.

ROHFLEISCH, MARJORIE C. (Mrs. K.) (1966)……Assistant Professor of Music
B.A., Pomona College; M.A., San Diego State College.

‡ROHRL, VIVIAN J. (Mrs. H.) (1965)……Assistant Professor of Anthropology
B.A., M.A., University of Chicago; Ph.D., University of Minnesota.

ROMANO, ALBERT (1963)……Associate Professor of Mathematics
B.A., Brooklyn College; M.A., Washington University; Ph.D., Virginia Polytechnic Institute.

ROSS, RAMON R. (1961)……Associate Professor of Education
B.A., Central Washington College; M.Ed., University of Idaho; Ed.D., University of Oregon.

ROST, NORMAN (1951)……Professor of Music
B.M., M.M., University of Michigan.

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*On leave, fall 1967–68.
†On leave, spring 1967–68.
‡On leave, year 1967–68.

ROTHMAN, MAX, Captain, USAF (1966)........Assistant Professor of Aerospace Studies
B.A., University of Vermont; graduate study, University of Southern California.

ROWE, ROBERT D. (1946)........Professor of Chemistry
A.B., Stanford University; Engineer in Engineering Chemistry; Ph.D., Stanford University.

‡ROWLAND, MONROE K. (1960)........Associate Professor of Education
B.S., M.A., Ph.D., University of Michigan.

ROY, ELSIE L. (Mrs. O. A.) (1959)........Assistant Catalog Librarian
A.B., San Diego State College.

‡RUETTEN, RICHARD T. (1960)........Associate Professor of History
B.A., Colorado State College; M.A., Ph.D., University of Oregon.

RUJA, HARRY (1947)........Professor of Philosophy
A.B., University of California at Los Angeles; M.A., University of Chicago; M.A., San Diego State College; Ph.D., Princeton University.

RUMBAUGH, DUANE M. (1954)........Professor of Psychology
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.

RYAN, DONALD E. (1967)........Assistant Professor of Mathematics
B.A., Ph.D., University of Texas.

SALERNO, M. CONSTANCE (Mrs.) (1964)........Assistant Professor of Nursing
Diploma, San Diego County Hospital School of Nursing; B.S., M.S., San Diego College for Women.

SALTZ, DANIEL (1959)........Professor of Mathematics
B.A., B.S., University of Chicago; M.S., Ph.D., Northwestern University.

SAMOVAR, LARRY A. (1963)........Associate Professor of Speech Arts
B.A., Los Angeles State College; M.S., Ph.D., Purdue University.

SAMPLES, HOWELL GORDON, JR. (1950)........Assistant Education Librarian
A.B., University of Georgia; B.S. in L.S., George Peabody College for Teachers.

SAND, MARGARET C. (Mrs. C. A.) (1964)........Assistant Professor of Psychology
A.B., University of Colorado; M.A., Ph.D., Columbia University.

†SANDERLIN, GEORGE W. (1955)........Professor of English
B.A., American University; Ph.D., Johns Hopkins University.

SANDERS, ERIC P. (1967)........Assistant Professor of Psychology
B.A., University of Vermont; M.B.A., City University of New York; Ph.D., University of California.

SANDERS, FREDERICK C. (1967)........Assistant Professor of Speech Arts
A.B., M.A., San Diego State College.

SANDSTROM, GLENN A. (1956)........Professor of English
B.A., M.A., Washington State College; Ph.D., University of Illinois.

SANNER, RICHARD L. (1965)........Assistant Professor of Education
B.S., Iowa State University; M.A., University of Iowa; doctoral candidate, Arizona State University.

SANTANGELO, GENNARO A. (1967)........Assistant Professor of English
B.S., Fordham College; M.A., Ph.D., University of North Carolina.

SATTLER, JEROME M. (1965)........Assistant Professor of Psychology
A.B., City College of New York; M.A., Ph.D., University of Kansas.

SAVAGE, EDITH J. (Mrs. P.) (1960)........Associate Professor of Music
B.S., University of Missouri; M.S., Texas College of Arts and Industries; Ed.D., University of Colorado.

SAYLOR, CHARLES F. (1967)........Assistant Professor of English
B.A., M.A., University of Washington; Ph.D. candidate, University of California.

SCHABER, STEVEN C. (1967)........Assistant Professor of German
A.B., San Diego State College; M.A., Ph.D., Princeton University.

SCHALLES, FRANCES I. (1950)........Education and Curriculum Materials Librarian
A.B., San Diego State College. Additional graduate study.

SCHAPIRO, HARRIETTE C. (1966)........Assistant Professor of Biology
B.S., University of Miami; M.A., Brandeis University; Ph.D., University of Miami.

SCHATZ, ARTHUR W. (1963)........Assistant Professor of History
B.A., St. Mary's College, California; M.A., Ph.D., University of Oregon.

SCHEIDE, BENTON F. (1962)........Associate Director of Libraries, Reader Services
A.B., M.A.L.S., University of Denver.

SCHMIDT, JOHN L. (1957)........Professor of Education
B.S., Lawrence College; M.S., Ph.D., University of Wisconsin.

SCHMIDT, PATRICIA V. (Mrs. D.) (1966)........Assistant Professor of Nursing
B.S., College of St. Teresa, Minnesota; M.S., Marquette University.

SCHMIER, WALTER D. (1967)........Assistant Professor of Business Law and Finance
A.B., LL.B., Wayne State University.

SCHOPP, JOHN D. (1962)........Associate Professor of Astronomy
B.S., Northwestern University; Ph.D., Princeton University.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

SCHROCK, NICHOLAS W. (1967)..........Assistant Professor of Economics
B.A., Western Reserve University; M.A., San Diego State College; Ph.D., University of Oregon.

SCHRUPP, MANFRED H. (1948)..........Dean, School of Education; Professor of Education
B.S., M.Ed., Ph.D., University of Minnesota.

SCHULTE, RICHARD H. (1965)..........Assistant Professor of Psychology
A.B., Michigan State University; M.A., Ph.D., University of Illinois.

SCHUNERT, JIM R. (1948)..........Professor of Education
B.S., M.A., Ph.D., University of Minnesota.

SCHUPP, CHERIE E. (Mrs. W.) (1965)..........Assistant Professor of Home Economics
B.S., Texas College of Arts and Industries; M.Ed., Southwest Texas State College.

SCHUTTE, WILLIAM H. (1947)..........Associate Professor of Physical Education
B.S., University of Idaho; M.S., University of Southern California.

SCOTT, FRANK L. (1947)..........Professor of Physical Education
A.B., Grinnell College; M.A., Ph.D., University of Michigan.

SEGADE, GUSTAV V. (1967)..........Assistant Professor of Spanish
B.A., M.A., Ph.D. candidate, University of Arizona.

SEGAL, EVALYN F. (1960)..........Professor of Psychology
A.B., University of Chicago; B.A., Ph.D., University of Minnesota.

SELLMAN, HUNTON D. (1946)..........Professor of Speech Arts
B.S., Purdue University; M.S., University of Arizona. Additional graduate study at University of California, University of North Carolina and Yale University.

SENDER, FLORENCE H. (Mrs.) (1964)..........Assistant Professor of Spanish
B.A., Franklin College, Indiana; M.A. and additional graduate study, Northwestern University.

SERIGHT, ORIN D. (1967)..........Assistant Professor of English
B.A., University of Colorado; M.A., University of Arkansas; Ph.D., Indiana University.

SERVEY, RICHARD E. (1961)..........Associate Professor of Education
A.B., A.M., University of California at Los Angeles; Ph.D., University of Southern California.

SHARKEY, GERALD K. (1956)..........Professor of Marketing
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.

SHARTS, CLAY M. (1962)..........Associate Professor of Chemistry
B.S., University of California; Ph.D., California Institute of Technology.

SHAW, PETER W. (1955)..........Professor of Mathematics
B.A., M.A., University of Toronto; Ph.D., Stanford University.

SHELDON, JOHN M. (1962)..........Associate Professor of Music
B.Sc., University of North Dakota; M.A., Arizona State University; Ed.D., University of Southern California.

SHEPARD, DAVID C. (1956)..........Professor of Biology
A.B., Ph.D., Stanford University.

SHIDELER, JAMES H., JR. (1966)..........Lecturer in Physical Science
B.S., Oregon State College; M.S., University of Washington.

†SHIELDS, ALLAN E. (1949)..........Professor of Philosophy
A.B., University of California; M.A., Ph.D., University of Southern California.

SHIRA, DONALD W., JR. (1958)..........Assistant Social Sciences Librarian
B.A., University of Redlands; M.A.L.S., George Peabody College.

SHOUSE, CLAUDE F. (1946)..........Professor of English
A.B., Georgetown College; M.A., University of Kentucky; Ph.D., University of Southern California.

SHUTLER, MARY E. (Mrs. R.) (1967)..........Assistant Professor of Anthropology
B.A., University of California; M.A., Ph.D., University of Arizona.

SHUTLER, RICHARD, JR. (1967)..........Assistant Professor of Anthropology
B.A., M.A., University of California; Ph.D., University of Arizona.

SHUTTS, WILLIAM H. (1958)..........Professor of Engineering
B.S.M.E., M.S.A.E., University of Colorado; Ph.D., University of Texas.

SIDOWSKI, JOSEPH B. (1956)..........Professor of Psychology
B.A., Pomona College; M.S., Ph.D., University of Wisconsin.

SIMONS, JEROLD J. (1967)..........Assistant Professor of Industrial Arts
B.A., San Jose State College; M.A., California State College at Long Beach; Ph.D., Texas A & M University.

SINGER, ARTHUR, JR. (1959)..........Professor of Education
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.

SKAAR, DONALD L. (1960)..........Assistant Professor of Engineering
B.E.E., University of Minnesota; M.S., Oregon State University.

‡SKOLIL, LESTER L. (1951)..........Professor of Physics
A.B., Doane College; M.A., University of Nebraska; Ph.D., University of California; D.Sc., Doane College, Nebraska.

SLAUGHTER, I. BERNICE (Mrs. J.) (1967)..........Assistant Professor of Education
B.S., Kansas State College; M.A., California Western University.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

SLOAN, WILLIAM C. (1961)........Associate Professor of Biology
B.S., M.S., Ph.D., University of Florida.

SMITH, ALAN C. (1963)........Assistant Professor of Education
B.A., M.A., Colorado State College; Ed.D., University of Oregon.

SMITH, CHARLES D., JR. (1967)........Assistant Professor of History
A.B., Williams College; M.A., Harvard University; Ph.D. candidate, University of Michigan.

SMITH, CLIFFORD EDWARD (1937)........Professor of Astronomy
A.B., Carleton College; M.A., Swarthmore College; Ph.D., University of California.

SMITH, DEANE FRANKLIN (1939)........Associate Professor of Music
B.M., M.M., Northwestern University.

SMITH, HAYDEN R. (1957)........Professor of Education
B.A., Albion College; M.A., Ph.D., University of Michigan.

SMITH, J. DAYTON (1955)........Professor of Music
A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.

SMITH, JANE K. (Mrs. R. D.) (1968)........Assistant to Vice President for Academic Affairs
B.S., West Virginia University; M.A., Northwestern University.

SMITH, JIMMIE B. (1968)........Assistant Professor of Mathematics
B.A., B.S., Rice University; M.A. Ph.D., University of Arizona.

SMITH, JOHN D. (1965)........Assistant Professor of Spanish
B.S., University of California, Los Angeles; M.A., Ph.D., University of Southern California.

SMITH, JOHN R. (1957)........Associate Professor of Psychology
B.A., Occidental College; M.A., Ph.D., University of California at Los Angeles.

‡SMITH, LESTER K. (1957)........Humanities Librarian
B.A., San Diego State College; M.S. in L.S., University of Southern California.

SMITH, LOUIS E., JR. (1946)........Professor of Physics
A.B., San Diego State College; Ph.D., University of Washington.

SMITH, MARGOT N. (Mrs. G. S.) (1964)........Activities Adviser
A.B., M.A. candidate, San Diego State College.

SMITH, NEWTON B. (1954)........Professor of Mathematics
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.

SMITH, RAY T., JR. (1964)........Associate Professor of History
B.A., Southern Methodist University; M.A., Ph.D., University of California.

SMITH, ROBERT D., JR. (1963)........Associate Professor of Education
B.A., M.A., Arizona State University; Ph.D., Northwestern University.

SMITH, WILLIAM R., Lt.Col., USAF (1967)........Chairman, Division of Aerospace Studies;
Professor of Aerospace Studies
B.B.A., Northeastern University; M.B.A., Stanford University; additional graduate study, University of Southern California; Certifield Public Accountant.

†SNIDER, MERVIN S. (1953)........Professor of Music
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.

SNODGRASS, HERSCHEL R. (1967)........Professor of Physics
B.A., M.A., University of New Mexico; Ph.D., University of California.

SNUDDEN, LESLIE W. (1959)........Associate Professor of Accounting
B.S., Northwestern University; M.B.A., D.B.A., University of Southern California. Certified Public Accountant.

SNYDER, ALICE M. (Mrs. K.) (1967)........Assistant Professor of Anthropology
B.A., M.A., Stanford University; Ph.D. candidate, University of Hawaii.

SNYDER, WILLIAM S. (1960)........Associate Professor of Philosophy
B.A., Temple University; Ph.D., Princeton University.

SOLBUE, GARY A. (1964)........Activities Adviser
A.B., San Diego State College.

SOMMERVILLE, ROSE M. (Mrs. J.) (1967)........Assistant Professor of Home Economics
B.A., Barnard College, Columbia University; M.A., Columbia University; Ed.D., Teachers College, Columbia University.

SORENSON, GEORGE N. (1946)........Chairman, Division of Fine Arts; Professor of Art
A.B., San Diego State College; M.A., University of Southern California; additional graduate study at the Universities of California and Minnesota.

SORENSON, GEORGE W. (1967)........Assistant Professor of Journalism
A.B., Antioch College, Ohio; M.S., Boston University; Ph.D., University of Iowa.

SOVAY, DOMINIE A. (Mrs. K.) (1966)........Placement Counselor
A.B., San Diego State College.

SPANGLER, JOHN A. (1946)........Professor of Chemistry
A.B., Ph.D., West Virginia University.

SPONSELLER, DORIS M. (1965)........Assistant Professor of Business Education
B.S., Ohio University; M.A., New York University.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

SPORTSMAN, CHARLES C. (1947) Associate Professor of Physical Education
B.S., North Texas State College; M.S. and additional graduate study at the University of Southern California.

SPRUNT, JEAN (1963) Assistant Professor of Physical Education
B.S., University of Utah; M.S., Washington State University.

SRBICH, ALEXANDER L. (1959) Associate Professor of Management
B.S., Officers Technical College, Yugoslavia; M.A., University of Cologne, Germany; B.S.E., M.B.A., University of Michigan; Ph.D., University of Minnesota.

STANIFORD, PHILIP S. (1967) Assistant Professor of Anthropology
B.A., University of California, Santa Barbara; M.A., University of Hawaii; Ph.D., London School of Economics and Political Science.

STANLEY, REGINA T. (Mrs.) (1965) Lecturer in Nursing
B.S., San Diego State College.

STARR, RAYMOND G. (1964) Assistant Professor of History
B.A., Ph.D., University of Texas.

STAUTLAND, SIGURD (1966) Assistant Professor of Education
B.Fag., University of Oslo, Norway; M.A., College of the Pacific; Ph.D., Stanford University.

STECKBAUER, MARK J. (1967) Assistant Professor of Education
A.B., Catholic University of America; M.A., San Diego State College; Ed.D. candidate, University of California, Los Angeles.

STEELE, RICHARD W. (1967) Assistant Professor of History
B.A., Queens College; M.A., University of Wisconsin; M.A., Ph.D. candidate, Johns Hopkins University.

STEPHENSON, CLARENCE E. (1963) Associate Professor of Speech Arts
B.A., M.A., Ph.D., University of Michigan.

STEVENS, WALTER R. (1956) Professor of Psychology
A.B., Park College; M.A., Ph.D., Michigan State University.

STEWART, CHARLES J. (1955) Professor of Chemistry
B.A., San Diego State College; M.S., Ph.D., Oregon State College.

STEWART, PAUL E. (1953) Professor of Physical Science
A.B., College of Wooster; Ph.D., Stanford University.

STIMMEL, LESTER H. (1967) Assistant Professor of English
B.A., Capital University, Ohio; M.A., Ohio State University; additional graduate study, University of Wisconsin.

STODDART, JESSIE L. (1966) Assistant Professor of History
B.A., Carroll College, Wisconsin; M.A., University of Nebraska; Ph.D., University of California.

STONE, HAMILTON L. (1947) Associate Professor of Engineering
B.S., U.S. Naval Academy; graduate study at U.S. Naval Postgraduate School. Registered Mechanical Engineer.

STONE, SANFORD H. (1956) Professor of Engineering
B.S.E., M.S.E., University of Michigan; M.S., University of Illinois. Registered Professional Civil Engineer.

STRAND, MARGUERITE R. (Mrs. R. L.) (1955) Professor of Education
A.B., M.A., Florida State College for Women; Ph.D., University of Washington.

STRATTON, DAVID R. (1967) Assistant Professor of Marketing
B.S., M.B.A., University of Colorado; Ph.D. candidate, University of Texas.

STRATTON, FRANK E. (1966) Assistant Professor of Engineering
B.S., San Diego State College; M.S., Ph.D., Stanford University.

STRAUB, LURA LYNN (1948) Professor of Business Education
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study, Universities of Wyoming, Denver and Colorado.

STROM, LEONARD E. (1959) Associate Professor of Education
A.B., San Jose State College; M.S., University of Southern California; Ed.D., Teachers College, Columbia University.

STRONG, DOUGLAS H. (1964) Assistant Professor of History
B.A., M.A., University of California; D.S.S., Syracuse University.

STUMPF, JACK E. A. (1965) Professor of Social Work
B.S., George Williams College, Chicago; M.S.W., University of Southern California; Ph.D. candidate, Brandeis University.

SUCEC, ANTHONY A. (1967) Assistant Professor of Physical Education
A.B., M.A., San Diego State College; Ed.D., University of California.

SUCHAR, KAREN Y. (Mrs. W.) (1962) Assistant Catalog Librarian
A.B., Bowling Green State University; A.M.L.S., University of Michigan.

SULLIVAN, CALISTA S. (1967) Assistant Humanities Librarian
B.A., Albertus Magnus College, Conn.; M.S.L.S., Simmons College, Mass.

SULLIVAN, EDWARD D. S. (1967) Assistant Professor of English
B.A., University of Santa Clara; M.A., Ph.D., University of California, Santa Barbara.

SUTHERLAND, JON N. (1967) Assistant Professor of History
A.B., San Diego State College; Ph.D. candidate, University of California, Los Angeles.

SWIGGETT, JEAN D. (1946)……Professor of Art
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont College.

SZABO, ANDREW (1955)……Social Sciences Librarian
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.

SZEP, MARTHA (Mrs. G.) (1966)……Assistant Professor of English
Ph.D., Pazmany Peter University, Hungary.

TANAKA, YOSHIO (1965)……Assistant Professor of German
LL.B., Tokyo University; B.A., M.A., Ph.D., University of California, Los Angeles.

TANZER, JOANN L. (Mrs. J. L.) (1956)……Professor of Art
B.A., M.A., Michigan State University.

TAYLOR, HAWLEY C., JR. (1964)……Assistant Professor of English
A.B., Reed College, Oregon; Ph.D. candidate, University of Washington.

TAYLOR, JAMES W. (1950)……Professor of Geography
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.

TAYLOR, KENNETH M. (1949)……Professor of Biology
A.B., M.A., Ph.D., University of California at Los Angeles.

TEASDALE, JOHN G. (1956)……Professor of Physics
A.B., Ph.D., University of California at Los Angeles.

TEBOR, IRVING B. (1957)……Professor of Social Work
B.S., Northern Illinois State Teachers College; M.A., University of Chicago; Ph.D., Oregon State College.

TEMPLIN, JACQUES D. (1962)……Associate Professor of Physics
A.B., University of California; M.A., Ph.D., University of California, Los Angeles.

TERRY, WILLIAM L. (1946)……Chairman, Division of Health Education, Physical Education and Recreation; Professor of Physical Education
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.

THEOBALD, JOHN R. (1946)……Professor of English
B.A., St. Catherine's College, Oxford University; M.A., Mansfield College, Oxford University; Ph.D., University of Iowa.

THIEL, DONALD W. (1957)……Professor of Industrial Arts
B.S., University of Nebraska; M.A., Stout State College; Ph.D., Ohio State University.

THILE, EDMUND L. (1967)……Assistant Professor of Speech Arts
A.B., San Diego State College; M.A., Ph.D., University of Southern California.

THOMAS, ALICE E. (Mrs. H.) (1955)……Associate Professor of Home Economics
B.S., Bethany College, Kansas; M.A., Columbia University; additional graduate study at Universities of California and Washington.

THOMAS, BLAKEMORE E. (1956)……Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.

THOMPSON, WILLIS H., JR. (1967)……Assistant Professor of Physical Science
B.S., B.A., Stanford University; M.A., San Jose State College.

THRANE, JAMES R. (1966)……Assistant Professor of English
A.B., M.A., University of California, Los Angeles; Ph.D., Columbia University.

THREET, RICHARD L. (1961)……Associate Professor of Geology
B.S., B.A., M.A., University of Illinois; Ph.D., University of Washington.

THWAITES, WILLIAM M. (1965)……Assistant Professor of Biology
B.S., University of Wisconsin; M.S., Ph.D., University of Michigan.

TIDWELL, JAMES N. (1947)……Professor of English
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.

‡TOLLEFSEN, DOROTHY J. (1946)……Associate Professor of Physical Education
A.B., M.A., University of California.

TORBERT, FRANCES B. (Mrs. H.) (1937)……Professor of Management
A.B., Stanford University; M.A., University of Southern California; additional graduate study at Stanford University.

TOSSAS DE IRIZARRY, LEILA V. (1961)……Associate Professor of Education
B.S., M.A., Ed.D., Teachers College, Columbia University.

TOZER, LOWELL (1954)……Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.

TRIMMER, RUSSELL L. (1955)……Professor of Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

TROXELL, EUGENE A. (1966)……Assistant Professor of Philosophy
A.B., Gonzaga University; M.A., Ph.D., University of Chicago.

TUNBERG, JACQUELINE D. (Mrs. W. A.) (1967)……Assistant Professor of English
B.A., M.A., Ph.D., University of Southern California.

TURNER, GEORGE D. (1963)……Assistant Professor of Physical Science
A.B. and doctoral candidate, University of California.

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‡On leave, year 1967–68.

TURNER, MARJORIE S. (Mrs. M. B.) (1954)........Professor of Economics
B.A., M.A., Ph.D., University of Texas.

TURNER, MERLE B. (1950)........Professor of Psychology
A.B., Willamette University; M.A., Stanford University; Ph.D., University of Colorado.

TURNER, NORMAN C. (1964)........Assistant Professor of French
B.A., M.A., Brigham Young University; Ph.D., Syracuse University.

†VANDERBILT, KERMIT (1962)........Associate Professor of English
B.A., Luther College, Iowa; M.A., Ph.D., University of Minnesota.

VAN DE WETERING, R. LEE (1960)........Professor of Mathematics
B.S., University of Washington; Ed.M., Western Washington College of Education; Ph.D., Stanford University.

VANCE, ROBERT W. (1954)........Physician and Surgeon
B.S., University of South Dakota; M.D., Northwestern University.

VENIERIS, JOHN P. (1967)........Assistant Professor of Economics
B.A., Graduate School of Economics and Business Administration, Athens, Greece; doctoral candidate, University of Oregon.

VERGANI, GIANANGELO (1963)........Assistant Professor of Italian
Dottorato in Lettere, University of Pavia, Italy; additional graduate study, University of California.

VOEKS, VIRGINIA W. (1949)........Professor of Psychology
B.S., M.S., University of Washington; Ph.D., Yale University.

WADE, KENNETH S. (1964)........Assistant Professor of Accounting
B.S., United States Military Academy; M.S., San Diego State College; Ph.D., University of California, Los Angeles.

†WADSWORTH, EARL P., JR. (1956)........Professor of Chemistry
B.S., M.S., University of New Hampshire; Ph.D., Iowa State College.

WALBA, HAROLD (1949)........Professor of Chemistry
B.S., Massachusetts State College; Ph.D., University of California.

WALCH, HENRY A., JR. (1955)........Professor of Microbiology
B.A., Ph.D., University of California at Los Angeles.

WALKER, LLOYD A. (1965)........Assistant to the President
B.Ed., University of California, Los Angeles; graduate study, New York University and San Diego State College.

WALL, BARTHOLOMEW D. (1965)........Lecturer in Education
B.S., M.S., Ed.D., Wayne State University.

WALLACE, ROBERT D. (1957)........Professor of Art
B.A., M.A., Stanford University; D.Litt., University of Geneva.

WALLING, CURTIS R. (1931)........Professor of Engineering
A.B., E.E., Stanford University; additional graduate study at Stanford University and the University of Southern California. Registered Electrical Engineer.

WALSH, JAMES L. (1962)........Associate Professor of Spanish
B.A., University of Nevada; M.A., Mexico City College; Ph.D., University of Illinois.

WALSH, M. AGNES (Mrs. W. E.) (1955)........Assistant Professor of Education
B.S., Northwestern University; M.A., Teachers College, Columbia University.

WANLASS, DOROTHY C. (1955)........Professor of English
B.S., Utah State University; M.A., Ph.D., Columbia University.

WARD-STEINMAN, DAVID (1961)........Associate Professor of Music
B.M., Florida State University; M.M., D.M.A., University of Illinois.

WARMER, MARGERY ANN (Mrs. J. C.) (1956)........Dean of Activities
A.B., M.S., and additional graduate study at the University of Southern California.

WARNER, BRADFORD B. (1967)........Educational Television Station Program Director
B.S., Kent State University.

WARREN, EDWARD W. (1963)........Associate Professor of Philosophy
B.A., Stanford University; Ph.D., Johns Hopkins University.

WARREN, E. JUNE (Mrs.) (1957)........Dean of Admissions and Records
B.S., Northern State Teachers College, South Dakota; M.A., San Diego State College; doctoral candidate, University of California, Los Angeles.

WARREN, LeROY J. (1955)........Professor of Mathematics
B.A., College of Idaho; M.A., Ph.D., University of Oregon.

WATSON, DONALD R. (1939)........Vice President for Academic Affairs; Professor of Physical Science
A.B., B.S., A.M., Ed.D., University of Southern California.

WATSON, LAWRENCE C. (1967)........Assistant Professor of Anthropology
B.A., University of California, Los Angeles; M.A., University of Southern California; Ph.D., University of California, Los Angeles.

‡WEBB, CHARLES R., JR. (1949, except 1964–66)........Professor of History
A.B., M.A., University of California; Ph.D., Harvard University.

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†On leave, spring 1967–68.
‡On leave, year 1967–68.

WEBB, EDWARD M. (1964)........Assistant to the Dean of Students
A.B., M.S., San Diego State College; additional graduate study, United States International University.

WEBER, DAVID J. (1967)........Assistant Professor of History
B.S., State University of New York, College at Fredonia; M.A., Ph.D., University of New Mexico.

WEBSTER, GARY D. (1965)........Assistant Professor of Geology
B.S., University of Oklahoma; M.S., University of Kansas; Ph.D., University of California, Los Angeles.

†WEDBERG, HALE L. (1959)........Professor of Botany
B.A., Los Angeles State College; Ph.D., University of California at Los Angeles.

WEETER, RAYMOND D. (1966)........Assistant Professor of Spanish
B.A., University of Utah; M.A., Universidad Nacional de Mexico; Ph.D., University of California.

WEISSMAN, STANLEY N. (1962)........Associate Professor of Philosophy
A.B., Brooklyn College; Ph.D., Columbia University.

WELLS, RICHARD W. (1961)........Assistant Professor of Physical Education
A.B., Occidental College; M.A., San Diego State College.

WENDLING, AUBREY (1954)........Professor of Sociology
A.B., San Francisco State College; M.A., Ph.D., University of Washington.

WERNER, JOAN T. (Mrs. R.) (1965)........Assistant Professor of Sociology
B.S., State College, Pennsylvania; M.Ed., Pennsylvania State University; D.S.Sc. candidate, Syracuse University.

WESTERVELT, WILLIAM O. (1964)........Assistant Professor of German
B.A., Colgate University; M.S., Elmira College; M.A., Ph.D., University of Southern California.

WETHERILL, WILLIAM H. (1957)........Professor of Education
B.Ed., University of Toledo; M.A., Stanford University; Ph.D., University of Michigan.

WHITNEY, DANIEL D. (1966)........Assistant Professor of Anthropology
B.A., M.A., Ph.D. candidate, Michigan State University.

WICK, ARNE N. (1958)........Professor of Chemistry
B.S., M.S., Ph.D., University of Minnesota.

*WIDMER, KINGSLEY (1956)........Professor of English
B.A., M.A., University of Minnesota; Ph.D., University of Washington.

WIJNHOLDS, HEIKO W. J. (1967)........Assistant Professor of Business Law and Finance
LL.B., University of Potchefstroom, South Africa; Jur. D. (Econ.), University of Utrecht.

WILCOX, ROBERT F. (1950)........Professor of Political Science
A.B., M.A., Stanford University; M.A., Columbia University; Ph.D., Stanford University.

WILDING, JOHN H. (1960)........Associate Professor of Education
B.Arch., Catholic University of America; M.A., Teachers College, Columbia University; Ed.D., University of Southern California.

WILHELM, BETTY J. (1961)........Assistant Professor of Physical Education
B.S., University of Wisconsin; M.A., University of Michigan.

†WILLERDING, MARGARET F. (1956)........Professor of Mathematics
A.B., Harris Teachers College; M.A., Ph.D., St. Louis University.

WILLIAMS, FLORENCE I. (1962)........Associate Professor of Spanish
B.A., Mount Union College, Ohio; M.A., Ph.D., University of Cincinnati.

WILLIAMSON, GLORIA R. (Mrs. C.) (1961)........Assistant Professor of Physical Education
A.B., M.A., Los Angeles State College.

WILLIS, GEORGE C. (1967)........Assistant Professor of Physical Education
B.A., M.A., California State College at Los Angeles.

WILSON, WILFRED J. (1963)........Associate Professor of Zoology
A.B., Sacramento State College; M.A., Ph.D., University of California, Davis.

WIMER, ARTHUR C. (1950)........Professor of Journalism
B.Lit., Columbia University; M.A., University of Iowa.

WINSLOW, ROBERT W. (1965)........Assistant Professor of Sociology
B.A., California State College, Long Beach; M.A., Ph.D., University of California, Los Angeles.

WITHERSPOON, JOHN P. (1967)........Educational Television Station Manager
B.A., University of the Pacific; M.A. and additional graduate study, Stanford University.

WITTE, ERNEST F. (1963)........Dean, School of Social Work; Professor of Social Work
B.A., M.A., University of Nebraska; Ph.D., University of Chicago.

WOLF, ERNEST M. (1947)........Professor of German
Study at the Universities of Berlin, Paris, Muenster, Cambridge and Bonn. Ph.D., University of Bonn.

WOLF, FRED A. (1964)........Assistant Professor of Physics
B.S., University of Illinois; M.S., Ph.D., University of California, Los Angeles.

WOLTER, GERHARD H. (1957)........Professor of Physics
B.S., M.S. equivalent, University of Berlin.

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*On leave, fall 1967–68.

†On leave, spring 1967–68.

WOODLE, GARY L. (1966)........Assistant Professor of French
B.A., M.A., University of South Dakota; additional graduate study, University of Colorado.

WOODSON, JOHN H. (1961)........Associate Professor of Chemistry
B.A., Wesleyan University, Connecticut; Ph.D., Northwestern University.

WOTRUBA, THOMAS R. (1962)........Associate Professor of Marketing
B.B.A., M.B.A., Ph.D., University of Wisconsin.

WOZNICKI, ROBERT B. (1967)........Assistant Professor of History
B.A., St. Mary's University, Md.; M.A., University of Michigan; Ph.D., University of Madrid.

WRIGHT, RICHARD D. (1964)........Assistant Professor of Geography
A.B., A.M., Indiana University; Ph.D., University of Kansas.

WULBERN, JULIAN H. (1966)........Assistant Professor of German
A.B., University of California; M.A., University of Colorado; Ph.D. Northwestern University.

WYLIE, DONALD G. (1966)........Assistant Professor of Speech Arts
B.A., University of Michigan; M.A., Ph.D., Michigan State University.

YAHR, CHARLES C. (1955)........Professor of Geography
B.S., M.S., Illinois State Normal University; Ph.D., University of Illinois.

YANIZYN, JAMES E. (1962)........News Bureau Coordinator
B.A., Boston University School of Public Relations.

YARBOROUGH, JOHN M. (1959)........Director of Housing
B.S., Texas Agricultural and Mechanical College; M.A., Ed.D., Stanford University.

YESSELMAN, CHARLOTTE B. (Mrs. M.) (1967)........Assistant Professor of Education
B.A., Hunter College; M.S., New York University; Ph.D., University of New Mexico.

YOUNG, ARTHUR (1967)........Assistant Professor of Astronomy
B.S., Allegheny College; M.A., Ph.D., Indiana University.

ZAMPESE, ERNEST E. (1967)........Assistant Professor of Physical Education
B.S., M.A., California State Polytechnic College, San Luis Obispo.

ZELENOVICH, GEORGE (1963)........Assistant Professor of English
B.S., M.A., Washington University; doctoral candidate, Stanford University.

ZIEGENFUSS, GEORGE (1948)........Professor of Physical Education
B.A., University of Washington; M.A., Ed.D., Teachers College, Columbia University.

ZIMMERMAN, MARC J. (1965)........Lecturer in English
B.A., M.A., San Francisco State College.

APPOINTMENTS UNDER GRANTS FROM OUTSIDE FUNDS

AIKENS, INEZ M. (Mrs.) (1967)........Lecturer in Social Work
A.B., University of California; A.M., University of Chicago.

ANDRESEN, GRACE E. (Mrs.) (1967)........Lecturer in Social Work
B.S., University of Illinois; M.S.W., Tulane University.

BREWER, JACK L. (1967)........Lecturer in Social Work
A.B., M.S.W., San Diego State College.

CLARY, VIRGINIA L. (1967)........Lecturer in Social Work
B.A., Municipal University of Omaha; M.S.W., University of Chicago.

HALL, BEVERLY J. (Mrs. M.) (1967)........Lecturer in Social Work
B.A., University of the Pacific; M.A., University of California, Los Angeles.

KUKKONEN, RUTH M. (1966)........Lecturer in Social Work
B.A., Wayne State University; M.S.W., University of Michigan.

MANJOS, THELMA D. (Mrs. P.) (1967)........Lecturer in Education
B.A., University of California, Los Angeles; M.A., San Francisco State College; Ph.D., New York University.

MORGAN, RUTH H. (1967)........Lecturer in Social Work
B.S., Ohio University; M.S.W., University of Southern California; D.S.W., Columbia University.

MURPHY, MELVIN L. (1962)........Lecturer in Social Work
A.B., Washburn College; M.A., Denver University.

PEER, ROBERT W. (1967)........Lecturer in Social Work
A.B., San Diego State College; M.S.W., University of California, Los Angeles.

PILCHER, DONALD M. (1966)........Lecturer in Social Work
B.S., Kansas State University; M.S.W., University of Kansas.

SCHRIFFRIN, MARK (1967)........Lecturer in Social Work
B.S., New York University; M.S.W., University of California, Los Angeles.

SCHLATTER, MARTA (Mrs. E.) (1966)........Lecturer in Social Work
B.A., University of California; M.S.S., Smith College, Mass.

SHENKO, BARBARA E. (Mrs.) (1966)........Lecturer in Social Work
B.A., University of Chicago; M.S.S., Smith College, Mass.

TRAVIS, GEORGIA M. (Mrs.) (1964)........Lecturer in Social Work
B.A., University of Oklahoma; M.A., University of Chicago.

LECTURERS

ABORDO, ENRIQUE J. (1967)........Lecturer in Psychology
M.A., San Diego State College.

ACHESON, SHIRLEY A. (Mrs.) (1967)........Lecturer in Psychology
M.S., San Diego State College. Grossmont College.

AIKEN, EDWIN G. (1967)........Lecturer in Psychology
Ph.D., University of Illinois. Navy Training Research Laboratory.

ALLISON, GLENN (1965)........Lecturer in Social Work
M.A., University of Chicago. San Diego Community Welfare Council.

AMOV, MELVIN S. (1967)........Lecturer in History
M.A., Brandeis University. Grossmont College.

ANDERSON, JOHN M. (1967)........Lecturer, Imperial Valley Campus
Ph.D., University of Southern California. Riverside City Schools.

ANDERSON, VERENA C. (Mrs. L.M.) (1964)........Lecturer in English
A.B., San Diego State College.

ANDREWS, JULIA G. (Mrs. F. S.) (1947)........Associate Professor Emeritus of Art
M.A., Columbia University.

ARFMAN, MARILYN B. (Mrs. H. T.) (1963)........Lecturer in Sociology
M.A., San Diego State College.

ARROYO, ARMANDO I. (1967)........Lecturer in Social Work
M.S.W., Our Lady of Lake College, Texas. Parole Office.

ASHWORTH, PHILIP B. (1963)........Lecturer in Education
M.Sc., University of Southern California. San Diego City Schools.

BANISTER, ROBERT B. (1967)........Lecturer, Imperial Valley Campus
Ed.D., Armed Forces Institute.

BARKDOLL, ROBERT O. (1967)........Lecturer in Engineering
M.S.M.E., California Institute of Technology. General Dynamics/Convair.

BARNWELL, JOHN E. (1966)........Lecturer in Home Economics
M.A., University of Chicago.

BAUMGARTNER, MARGERY B (Mrs. R. N.) (1956) Lecturer in Home Economics and Education
M.S., Bank Street College of Education, New York.

BELKIN, DOROTHY H. (Mrs. P. B.) (1966)........Lecturer in Business Law/Finance
J.D., California Western University. State of California Division of Corporations.

BENEDICT, GEORGE (1966)........Lecturer in Business Law/Finance
L.L.B., Harvard Law School. Attorney.

BERG, KENNETH R. (1967)........Lecturer in Mathematics
Ph.D., University of Southern California. Whittaker Corporation/Narmco.

BERGER, ANITA N. (Mrs. R. L.) (1967)........Lecturer in Speech Arts
M.A., San Diego State College. Speech Therapist.

BERLIN, LOIS I. (Mrs. E. D.) (1962)........Lecturer in Home Economics
B.S., Oregon State College.

BERRY, SYLVIA (Mrs. S.) (1967)........Lecturer in Education
M.A., New York University.

BITHELL, ROBIN A. (1966)........Lecturer in Engineering
M.S., Oregon State University. General Dynamics/Convair.

BOEA, MYRTICE T. (1967)........Lecturer in Social Work
M.P.H., University of California, Los Angeles. Veterans' Administration Hospital.

BOGGS, WILMA T. (Mrs. A. H.) (1965)........Lecturer in Home Economics
B.S., Kansas State University.

BORNHORST, WILLIAM R. (1965)........Lecturer in Chemistry
M.S., San Diego State College.

BOYER, JOHN L. (1964)........Lecturer in Physical Education
M.D., Western Reserve University. Alvarado Medical Center.

BROOKS, BAYLOR (1931)........Professor Emeritus of Geology
A.B., Stanford University.

BROWN, ASHBURY L., JR. (1966)........Lecturer in Political Science
A.B., San Diego State College.

BROWN, EDGAR N. (1965)........Lecturer in Social Work
M.A., Ohio State University. Community Welfare Council.

BROWN, JAMES M. (1967)........Lecturer in Education
M.A., San Diego State College.

BROWN, RUTH M. (Mrs. C. M.) (1966)........Lecturer in English
M.A., Texas Western College.

BUKER, HARRIET H. (Mrs. H. W.) (1966)........Lecturer in Music
M.A., Boston University.

BUNCH, PHILIP B. (1967)........Lecturer in Engineering
M.S., San Diego State College. General Dynamics/Convair.

BURGIN, ALBERT M., JR. (1966) .... Lecturer in Journalism
B.A., University of California. Burgin and Associates.

BURNSIDE, HOUSTON M. (1967) .... Lecturer in Education
M.A., Claremont Graduate School. Minister.

BURRAGE, BRYAN R. (1963) .... Lecturer in Zoology
M.S., San Diego State College.

BUTZINE, FREDERICK C. (1963) .... Lecturer in Education
M.A., Stanford University. San Diego City Schools.

CAMPIGLIA, LOUIS J. (1966) .... Lecturer in Music
A.B., San Diego State College.

CARLSON, ROBERT E. (1967) .... Lecturer in Engineering
M.S., University of Illinois. General Dynamics/Convair.

CARNEGIE, JANE H. (Mrs.) (1966) .... Lecturer in Social Work
M.S.W., University of Southern California.

CARR, MALCOLM J. (1967) .... Lecturer in Sociology
M.A., Indiana University. U.S. Naval Personnel Research Activity.

CHAMBERS, NORMAN E. (1967) .... Lecturer in Education
M.A., San Diego State College. San Diego City Schools.

CLEMENS, THOMAS B. (1967) .... Lecturer in Business Law/Finance
M.Sc., M.Ed., University of Southern California.

CLOSSON, FREDERICK I. (1966) .... Lecturer in Sociology
M.A., San Diego State College.

COPELAND, CYNTHIA S. (Mrs. W. F.) (1967) .... Lecturer in English
M.A., University of California.

CRAFTS, GRETCHEN (Mrs. R. H.) (1966) .... Lecturer in English
M.A., University of California, Riverside.

CROWELL, MARIE L. (Mrs. R. M.) (1964) .... Lecturer in Spanish
A.B., San Diego State College.

CULVER, GERTRUDE E. (Mrs.) (1967) .... Lecturer in Education
A.B., San Diego State College.

CUMMINS, PATTI C. (Mrs. E. J.) (1966) .... Lecturer in Education
M.A., Michigan State University.

DAVIES, MARY I. (Mrs.) (1963) .... Lecturer in Education
M.S., Northern Illinois University.

DELUCIA, PAUL V. (1966) .... Lecturer in Industrial Arts
A.B., San Diego State College. O'Farrell Junior High School.

DENMAN, MARY E. (Mrs.) (1966) .... Lecturer in English
A.B., San Diego State College.

DEPEW, LEONARD W. (1965) .... Lecturer in Social Work
M.S.W., University of Washington. Episcopal Community Service.

DICKEY, DONALD H. (1966) .... Lecturer in English
J.D., John Marshall Law School, Illinois.

DIXON, HAROLD C. (1967) .... Lecturer in Social Work
M.S.W., University of Washington. Veterans' Administration.

DORFMAN, LORRAINE T. (Mrs. D. D.) (1965) .... Lecturer in Sociology
A.M., University of Michigan.

DORSEY, ARTHUR M. (1967) .... Lecturer in Social Work
M.S.W., University of California.

DOS SANTOS, MARINA I. (1964) .... Lecturer in Spanish
Maestro, Normal, Pilar-Paraguay.

DUCKWORTH, WILLARD G. (1967) .... Lecturer in Social Work
M.S.W., University of California, Los Angeles.

DUNN, GLEN R. (1962) .... Lecturer in Accounting
B.S., San Diego State College. Certified Public Accountant.

EBERSOLE, BLAIR B. (Mrs.) (1966) .... Lecturer in English
A.B., Heidelberg College, Ohio.

ELLERY, LAWRENCE F. (1967) .... Lecturer in Management
M.S., University of Illinois.

ELLIOTT, ELAINE Z. (Mrs.) (1967) .... Lecturer in Education
M.L.S., University of California.

ENGELBERG, RICHARD C. (1967) .... Lecturer in Accounting
M.B.A., Indiana University. Touche, Ross, Bailey and Smart.

ESCAMILLA, AUGUSTINE (1960) .... Lecturer in Health Education
M.A., San Diego State College. San Diego City Schools.

EVANS, A. JEAN (Mrs. R. W.) (1967) .... Lecturer in Education
M.A., Stanford University. Helix High School.

FAHY, WILLIAM L. (1966) .... Lecturer in English
A.B., St. Joseph's College, Pennsylvania.

FARWELL, CHARLES J. (1967)........Lecturer in Biology
M.S., San Diego State College.

FARWELL, JUDITH J. (Mrs. C. J.) (1964)........Lecturer in Biology
M.S., San Diego State College.

FAWCETT, LA MAR A. (1966)........Lecturer in Education
A.B., San Diego State College. Salvation Army Rehabilitation Center.

FLAGG, VIRGINIA G. (Mrs. D. A.) (1967)........Lecturer in Economics
Ph.D., University of California.

FOGEL, LAWRENCE J. (1966)........Lecturer in Sociology
Ph.D., University of California, Los Angeles. Decision Science, Inc.

FOX, FREDERICK I. (1967)........Lecturer in Business Law/Finance
LL.B., University of California. Attorney.

FUJITA, GEORGE Y. (1967)........Lecturer in Education
Ph.D., University of Minnesota.

GALLO, JOHN M. (1966)........Lecturer in Management
B.S., San Diego State College. San Diego County Personnel.

GALPER, MARVIN F. (1966)........Lecturer in Psychology and Education
Ph.D., Boston University. Clinical Psychologist.

GARMAN, GLEN D. (1966)........Lecturer in Psychology
Ph.D., University of Michigan. Veterans' Administration.

GEIGER, ISAURA R. (Mrs.)........Lecturer in Spanish
M.A., San Diego State College.

GERARD, MARY (1963)........Lecturer in Music
A.B., San Diego State College.

GERKE, RICHARD C. (1967)........Lecturer in Engineering
M.S., California Institute of Technology. R. C. Gerke and Associates.

GERSTEIN, MARTIN (1964)........Lecturer in Education
M.S., Long Island University. San Diego Department of Education.

GILBERT, ROBERT J. (1966)........Lecturer in Social Work
M.S.W., University of Michigan. Big Brothers of Orange County.

GITHENS, WILLIAM H. (1967)........Lecturer in Psychology
Ph.D., Western Reserve University. U.S. Navy Personnel Research Activity.

GOMBOLD, EDNA M. (1967)........Lecturer in Psychology
M.S., San Diego State College.

GOTKOWITZ, HELEN (Mrs. J.) (1966)........Lecturer in Social Work
M.S.W., University of Pennsylvania.

GRANT, HAROLD B. (1965)........Lecturer in Education
M.A., Claremont Colleges.

GRAY, AUDREY W. (Mrs. R. T.) (1967)........Lecturer in Education
M.A. Claremont Graduate School.

GULICK, EVELYN M. (Mrs. S. L.) (1966)........Lecturer in Art
B.A., Pomona College.

HALE, GEORGETTE B. (Mrs. E. A.) (1966)........Lecturer in French
C.A.P.E.S., Université de Toulouse, France.

HALLAHAN, MARGARET E. (Mrs. M.) (1966)........Lecturer in English
A.B., San Diego State College.

HAMILTON, ROBERT S. (1966)........Lecturer in Education
Ph.D., University of Southern California. San Diego Junior Colleges.

HAMMOND, JOHN C. (1967)........Lecturer, Imperial Valley Campus
Ph.D., Ohio State University.

HAMMONS, MIRIAM B. (Mrs. L. S.) (1961)........Lecturer in Education
M.A., Texas College of Arts and Industries.

HANCHETT, JEAN F. (Mrs. W. F.) (1967)........Lecturer in Political Science
M.A., San Diego State College.

HANSON, JUNE (Mrs. R. F.) (1965)........Lecturer in French
M.A., Indiana University.

HARDESTY, JOHN J. (1967)........Lecturer in Economics
A.B., University of Chicago.

HARDISON, J. L. (1967)........Lecturer in Psychology
Ph.D., University of Kentucky. County Community Mental Health Center.

HARRIS, FREDERICK J. (1965)........Lecturer in Engineering
B.E.E., Polytechnic Institute of Brooklyn, New York.

HARRIS, JOANNE (Mrs. S. L.) (1967)........Lecturer in Education
A.B., San Diego State College.

HAWES, CATHERINE S. (Mrs.) (1966)........Lecturer in Education
B.S., Pacilc Oaks College.

HAWORTH, JOANNE (Mrs. G. O.) (1966)........Lecturer in Social Work
M.S.W., University of California.

HERMAN, EDMUND (1966) Lecturer in Business Law/Finance
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HERMAN, ELSIE (Mrs. E.) (1966) Lecturer in Social Work
M.A., Chicago University.

HERMANSON, ALVAR B. (1967) Lecturer in Physical Education
Northlatin College, Sweden.

HILL, DENNIS P. (1966) Lecturer in Business Law/Finance
A.B., San Diego State College.

HINCKLEY, CLIVE S. (1967) Lecturer in Health Education
M.A., San Diego State College.

HINSHAW, ALVADORE J. (1965) Lecturer, Imperial Valley Campus
M.S., University of Southern California.

HOLMBERG, JAMES C. (1966) Lecturer in Political Science
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HOUSE, HERSCHEL A. (1961) Lecturer in Political Science
B.S., U.S. Naval Academy.

HOWARD, JAMES A. (1966) Lecturer in Psychology
P.h.D., University of California, Los Angeles. California Western University.

HUFF, GEORGE D. (1939) Lecturer in Health Education
M.D., University of Texas.

IVERSON, LUCILLE E. (Mrs.) (1960) Lecturer in Physical Education
Lucille Iverson Dance Studio.

JACOBY, ALFRED W. (1965) Lecturer in Journalism
B.J., University of Missouri.

JANCEK, CAMILLA J. (Mrs. L.) (1961) Lecturer in English
A.B., Hunter College, New York.

JENSEN, CARL P. (1967) Lecturer in Accounting
M.A., Columbia University.

JESSOP, MARY C. (Mrs. G. C.) (1964) Lecturer in Health Education
M.A., Stanford University.

JOHNSON, LA VERNE C. (1961) Lecturer in Psychology
Ph.D., Stanford University. U.S. Naval Neuropsychiatric Research Unit.

JONES, BARBARA M. (Mrs. R. R.) (1962) Lecturer in Education
M.A., University of Redlands.

JONES, CHARLES L. (1965) Lecturer in Mathematics
B.S., University of Washington. UNIVAC.

KAHN, EDWARD (1965) Lecturer in Accounting
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KALBFELL, DAVID C. (1960) Lecturer in Physics
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KEMP, MAUDE VON P. (1964) Lecturer in Social Work
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KEMPER, DAVID L. (1967) Lecturer in Biology
B.S.. University of California, Los Angeles.

KESSLER, LOIS P. (Mrs. A.) (1966) Lecturer in Health Education
M.S.P., San Diego State College.

KILMAN, BEVERLY A. (Mrs. T.) (1966) Lecturer in Psychology
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KINDER, JAMES S. (1953) Professor Emeritus of Education
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KING, BONNIE B., (Mrs. I. C.) (1964) Lecturer, Imperial Valley Campus
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KLOOS, LEO J., JR. (1967) Lecturer in Business Law/Finance
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KOOI, LOIS R. (1966) Lecturer in Social Work
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KRONEMEYER, ROBERT E. (1955) Lecturer in Accounting
M.A., University of Chicago. Certified Public Accountant. Attorney.

KUPFER, MIKE M. (1967) Lecturer in Engineering
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KUROKAWA, KENICHI (1967) Lecturer in Japanese
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LAKE, CAROLYN S. (Mrs.) (1966) Lecturer in Health Education and Sociology
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LEAVERTON, DAVID G. (1965) Lecturer in Business Law/Finance
L.L.B., University of California.

LEE, MARJORIE M. (Mrs. E. P.) (1964) Lecturer in Social Work
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LIMOLI, ELIZABETH N. (Mrs. B. L.) (1967)..........Lecturer in Education
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LINDSLEY, BYRON F. (1964)..........Lecturer in Business Law/Finance
L.L.B., Georgetown School of Law. Judge, Superior Court of San Diego County.

LOCKWOOD, WALLACE V. (1956)..........Counselor; Lecturer in Psychology
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LOOMIS, NOEL M. (1958)..........Lecturer in English
Writer.

LUCIUS, EMILY A. (Mrs. C. W.) (1964)..........Lecturer in Social Work
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LUDWIG, HERBERT R. (1967)..........Lecturer in Engineering
Ph.D., Northwestern University.

LUTZ, CARL L. (1967)..........Lecturer in Geography
M.A., San Diego State College. Mesa College.

LUYENDYK, BRUCE P. (1967)..........Lecturer in Geology
B.S., San Diego State College.

MACDONALD, ROBERT H. (1966)..........Lecturer in Social Work
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MARSH, MARY V. (Mrs. D. E.) (1963)..........Lecturer in Education
M.A., Claremont Graduate School.

MATHEWSON, SUE F. (Mrs. J. H.) (1965)..........Lecturer in Biology
Sc.D., Johns Hopkins School of Public Health.

MATTHEWS, ANN H. (Mrs. J. M.) (1964)..........Lecturer in Education
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MATULA, AUDREY L. (Mrs. A.) (1966)..........Lecturer in Journalism
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MAXSON, LINDA E. (Mrs. R.D.) (1964)..........Lecturer in Biology
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MAXWELL, BRUCE K. (1966)..........Lecturer in Education
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McDONALD, VIRGINIA P. (Mrs. R. D.) (1967)..........Lecturer in Sociology
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McKIM, PAUL W. (1967)..........Lecturer in Art
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McLEAN, CHARLES L. (1967)..........Lecturer in Industrial Arts
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MERCHANT, MARY E. (Mrs.) (1967)..........Lecturer, Imperial Valley Campus
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METZGAR, ERV F. (1967) ....Lecturer in Education
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METZGER, ROBERT P. (1963)..........Lecturer in Chemistry
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MILLER, DON E. (1967)..........Lecturer in Psychology
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MINYARD, OLIVE B. (Mrs.) (1966)..........Lecturer in Social Work
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MRACEK, VIRGINIA A. (Mrs. J. S.) (1966)..........Lecturer in Italian
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MULLICK, BRIJMOHAN (1966)..........Counselor
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NOWER, JOYCE (Mrs. L.) (1966)..........Lecturer in English
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NYDEGGER, MILDRED F. (Mrs. L. J.) (1967)..........Lecturer in Music
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O'CONNOR, THOMAS H. (1966)..........Lecturer, Imperial Valley Campus
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PALMER, JAMES T. (1967)..........Lecturer in Mathematics
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PHILLIPS, RICHARD P. (1967)..........Lecturer in Geology
Ph.D., University of California, San Diego. Society of Natural History.
PHLEGER, CHARLES F. (1967)..........Lecturer in Physical Science
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PONCE, MARGARITA V. (Mrs. X. P.) (1967)..........Lecturer in Spanish
POURNELLE, GEORGE H. (1966)..........Lecturer in Anthropology
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PRENN, JAMES L. (1960)..........Lecturer in English
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PRICE, QUENTON L. (1966)..........Lecturer in Home Economics
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RAAT, JAN (1967)..........Lecturer in Engineering
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REID, THELMA E. (1967)..........Lecturer in Education
M.A., University of California. San Diego City Schools.
RENCK, GENE B. (1967)..........Lecturer in Speech Arts
M.A., California State College at Los Angeles. Clinical Audiologist.
REZEK, JANE C. (Mrs. C. J.) (1961)..........Lecturer in Education
M.A., Teachers College, Columbia University.
RIMLAND, BERNARD (1962)..........Lecturer in Psychology
Ph.D., Pennsylvania State University. U.S. Naval Personnel Research Activity.
ROBBINS, THOMAS O. (1967)..........Lecturer in Microbiology
M.D., University of Minnesota. U.S. Naval Hospital.
ROCKAR, EVELYN M. (1967)..........Lecturer in Physics
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ROGERS, MARY LOU (Mrs.) (1964)..........Lecturer in Social Work
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ROGERS, PHILIP W. (1967)..........Lecturer in Engineering
M.Sc., Stanford University. General Dynamics/Convair.
ROSENBAUM, EUGENE S. (1967)..........Lecturer in Engineering
M.S.M.E., San Diego State College. General Dynamics/Convair.
RYAN, MARY C. (1966)..........Lecturer in Social Work
M.S.W., Catholic University, Washington, D.C. Child Guidance Clinic.
SADOWSKI, DORIS C. (Mrs. M. J.) (1963)..........Lecturer in Physical Science
B.A., Pomona College.
SALOMON, IRVING O. (1967)..........Lecturer in Political Science
L.H.D., California Western University.
SANTA-PINTER, J. J. (1967)..........Lecturer in Business Law/Finance
D.Civ.L., University Lateran Law School, Rome.
SARFATT, JACK (1967)..........Lecturer in Physics
M.S., University of California, San Diego.
SCALETTAR, RICHARD (1967)..........Lecturer in Physics
Ph.D., Cornell University. General Atomic.
SCHMOCK, JOYCE C. (Mrs. D. J.) (1961)..........Lecturer in Education
M.A., University of California, Los Angeles.
SCHORR, MARTIN M. (1965)..........Lecturer in Psychology
Ph.D., University of Denver.
SCHROEDER, JANICE S. (Mrs. L. F.) (1965)..........Lecturer in Music and Education
M.A., Teachers College, Columbia University.
SECKLER, PHILIP J. (1967)..........Lecturer in Social Work
M.S.W., University of Washington. Children's Home Society.
SHELLEY, MORGAN E. (1965)..........Lecturer in Health Education
M.S., University of Oregon.
SHIMMIN, IRVIN A. (1963)..........Lecturer in Education
M.A., University of California, Los Angeles.
SILVERMAN, ALBERT (1964)..........Lecturer in Engineering
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SINKANKAS, JOHN (1967) .... Lecturer in Geology
B.Sc., New Jersey State College.

SMALL, ROBERT L. (1964) .... Lecturer in Political Science
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SMITH, ELBERT B. (1965) .... Lecturer in Business Law/Finance
M.S., San Diego State College. General Dynamics/Convair.

SMITH, M. DAVID (1964) .... Lecturer in Political Science
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SPRAGUE, C. FREMONT, III (1964) .... Lecturer in Management
Ph.D., Case Institute of Technology, Ohio. Computer Applications, Inc.

STANDLEE, LLOYD S. (1967) .... Lecturer in Psychology
Ed.D., Columbia University. U.S. Naval Personnel Research Activity.

STARKEY, CARLENE J. (Mrs. R. R.) (1965) .... Lecturer in Physical Education
B.A., University of California, Santa Barbara.

STEEN, WILLIAM A. (1967) .... Lecturer in Engineering
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STERNBERG, HARRY (1967) .... Lecturer in Art
Idyllwild School of Music and Art, University of Southern California.

STODDARD, MERCEDES W. (Mrs. J. E.) (1967) .... Lecturer in English
B.A., University of Wisconsin.

STONE, JAMES R., JR. (1967) .... Lecturer, Imperial Valley Campus
M.M., University of Southern California. Imperial Valley College.

STORM, ALVENA S. (Mrs. E. M.) (1926) .... Professor Emeritus of Geography
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STOUT, ELIZABETH J. (Mrs. P.) (1963) .... Lecturer in English
B.A., University of New Hampshire.

STRATTON, MARCELLA K. (Mrs. D. R.) (1967) .... Lecturer in Home Economics
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SWANSON, CLAYTON G. (1964) .... Lecturer in Political Science
A.B., University of California, Los Angeles. County of San Diego.

SWIFT, CHARLES S. (1966) .... Lecturer in Psychology and Physical Education
M.S.E.E., U.S. Naval Postgraduate School, Annapolis.

SWITZER, WILBUR J. (1966) .... Lecturer in Geography
M.A., California State College at Long Beach. Southwestern College.

TAYLOR, MARY M. (Mrs. H. H.) (1961) .... Lecturer in Education
A.B., San Diego State College.

TENNEY, LESTER I. (1966) .... Lecturer in Business Law/Finance and Accounting
B.Ed., University of Miami.

THOMAS, EDMUND D. (1966) .... Lecturer in Psychology
M.S., San Diego State College. U.S. Naval Personnel Research Activity.

THOMPSON, I. JOYCE (Mrs. R. W.) (1967) .... Lecturer in Speech Arts
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THOMPSON, RUTH K. (Mrs.) (1966) .... Lecturer in Health Education
M.A., Claremont Graduate School.

THORNTON, G. EDWARD (1962) .... Lecturer in Speech Arts
M.A., State University of Iowa. Hilltop High School.

TOWNSEND, CLAUDE A. (1966) .... Lecturer in Social Work
M.S.W., University of California, Los Angeles. United Community Services.

TRAPP, EDGAR J. (1967) .... Lecturer in Political Science
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TURNER, GEORGIA G. (Mrs. J. M.) (1963) .... Lecturer in Physical Education
A.B., San Diego State College.

ULVESTAD, MARTHA L. (1967) .... Lecturer in Education
B.S., St. Cloud State College, Minnesota.

VALERIO, JOHN I. (1965) .... Lecturer in Engineering
Ph.D., State University of Iowa.

VARCONI, MARGARET J. (Mrs. A. F.) (1967) .... Lecturer in Social Work
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VENN, KENNETH E. (1967) .... Lecturer in Education
Ed.D., Columbia University. Santee Schools.

WADE, ANDREW L. (1965) .... Lecturer in Sociology
M.A., University of Oregon.

WALKER, ELMER E. (1967) .... Lecturer in Education
M.A., University of Southern California.

WARBURTON, JOHN T. (1967) .... Lecturer in Education
Ed.D., University of California, Los Angeles. Grossmont High School District.

WARREN, SIDNEY (1967) .... Lecturer in Political Science
Ph.D., Columbia University. California Western University.

WATTS, DONALD A. (1966)........Lecturer in Astronomy
B.S., San Diego State College.

WEIKEL, JOHANNA M. (Mrs. J. D.) (1965)........Lecturer in Physical Education
A.B., San Diego State College.

WEIR, MARY J. (1967)........Lecturer in Education
M.S., Drexel Institute of Technology. Spring Valley Junior High School.

WEMPLE, DOROTHY G. (Mrs. Q. A.) (1967)........Lecturer in Education
M.A., University of Southern California.

WESTON, GEORGE S. (1965)........Lecturer in Education
Ph.D., Michigan State University.

WHITE, CARROLL T. (1965)........Lecturer in Psychology
Ph.D., Brown University. U.S. Navy Electronics Laboratory.

WHITFIELD, EDWIN A. (1967)........Lecturer in Education
Ph.D., University of Iowa. San Diego County Department of Education.

WHITNEY, FREDERICK C. (1966)........Lecturer in Journalism
M.S., San Diego State College. F. C. Whitney Co.

WHITTEMORE, DOROTHY L. (Mrs.) (1964)........Lecturer in Education
M.A., Claremont Colleges.

WHOLDEN, ROSALIND G. (Mrs.) (1967)........Lecturer in Art
M.A., University of California, Los Angeles. San Diego City Schools.

WILLIS, JOE E. (1967)........Lecturer in Psychology
Ph.D., University of Arizona. U.S. Navy Personnel Research Activity.

WILSON, PENNY A. (Mrs. C. E.) (1966)........Lecturer in Health Education
B.S., San Diego State College.

WINTERSDORFF, PETER (1965)........Lecturer in Chemistry
B.S., San Diego State College.

WOOLRYCH, EDMUND H. (1964)........Lecturer in Business Law/Finance and Economics
Ph.D., Syracuse Graduate School. California Western University.

WORCESTER, MADELEINE C. (Mrs. J. D.) (1965)........Lecturer in Social Work
M.S.S.A., Western Reserve University. Family Service Association.

WRIGHT, JESS C. (1967)........Lecturer in Engineering
B.S., San Diego State College.

YONEMITSU, DOROTHY M. (Mrs. M. K.) (1964)........Lecturer in Social Work
M.S.S.W., Columbia University. Children's Hospital.

YOUNG, JAMES A. (1966)........Lecturer in Physics
Ph.D., University of California. General Atomic.

YUHL, WALTER A. (1966)........Lecturer in History
M.A., Colorado State College. Grossmont College.

ZAHND, WALTER F. (1966)........Lecturer in Social Work
M.S.W., University of Toronto, Canada. California Rehabilitation Center.

ZEMLICK, MAURICE J. (1963)........Lecturer in Psychology
Ph.D., Washington University, Missouri. Psychologist.

ASSISTANTS

AFTRETH, LYDIA G. (1967)........Assistant in Business Education
B.S., San Diego State College.

ALEXANDER, NORMAN A. (1967)........Assistant in German
A.B., San Diego State College.

ALMSTEDT, RUTH M. (Mrs. L. E.) (1965)........Assistant in Anthropology
B.A., Washington University, Missouri.

ANDERSON, JOHN P. (1967)........Assistant in Sociology
A.B., San Diego State College.

ANDERSON, KENNETH W. (1967)........Assistant in Political Science
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ANDERSON, LAURIE B. (Mrs. V. F.) (1967)........Assistant in Physical Education
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ASH, JOAN W. (1967)........Assistant in Mathematics
A.B., San Diego State College.

ATTAWAY, JOHN E. (1967)........Assistant in Industrial Arts
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AVARI, BAPSI D. (1967)........Assistant in Psychology
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BAGG, JONATHAN W. (1966)........Assistant in Chemistry
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BARTH, NORMAN P. (1967)........Assistant in Political Science
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BARTLETT, IAN C. (1966)........Assistant in Economics
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BAYLESS, MARY ANN (1967) .... Assistant in Physical Education
B.S., University of Minnesota.

BECKER, PAUL W. (1967) .... Assistant in Accounting
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BENKOSKI, STANLEY J., JR. (1967) .... Assistant in Mathematics
A.B., University of California, Riverside.

BEVERLY, GARY D. (1966) .... Assistant in Chemistry
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BEYER, MERLYN R. (1967) .... Assistant in Speech Arts
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BIERL, RAYMOND M. (1967) .... Assistant in Sociology
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BISZMAIER, MARGARET E. (1967) .... Assistant in Political Science
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BLACK, ROBERT L., JR. (1965) .... Assistant in Accounting
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BLUMSTEIN, CARL J. (1966) .... Assistant in Chemistry
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BRACE, THOMAS R. (1967) .... Assistant in Geography
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BRANDT, CLAYTON T. (1967) .... Assistant in Economics
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BRUHNS, TIM B. (1966) .... Assistant in Botany
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BURGER, LOUIS J. (1967) .... Assistant in Chemistry
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CANTRELL, WILLIAM H. (1967) .... Assistant in German
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B.A., California Western University.

DELL, GEORGE R. (1967)..........Assistant in Economics
A.B., San Diego State College.

DEMBOWSKI, PATTY JO (Mrs. O.)..........Assistant in Speech Arts
A.B., San Diego State College.

DENT, DAVID W. (1966)..........Assistant in Political Science
A.B., San Diego State College.

DERICHS, BERNHARD (1967)..........Assistant in German
A.B., San Diego State College.

DE SNOO, HENDRIK S. V. (1967)..........Assistant in Mathematics
Mathematical Engineer, Technological University, Holland.

DEVICH, ROBERT N. (1967)..........Assistant in Mathematics
A.B., San Diego State College.

DE VORKIN, DAVID H. (1967)..........Assistant in Astronomy
B.A., University of California, Los Angeles.

DORN, HARRY C. (1966)..........Assistant in Chemistry
A.B., University of California, Santa Barbara.

DREESSEN, RICHARD S. (1967)..........Assistant in Geology
B.A., University of California, Los Angeles.

DUCKWORTH, EDWIN L. (1967)..........Assistant in Astronomy
A.B., San Diego State College.

DUNFORD, FRANKLYN W. (1966)..........Assistant in Sociology
A.B., San Diego State College.

DUTY, RONALD W. (1967)..........Assistant in Political Science
A.B., San Diego State College.

DU VIGNEAUD, JACQUELINE (1966)..........Assistant in Chemistry
B.S., San Diego State College.

DYE, ELSA M. (Mrs. E. S.) (1967)..........Assistant in Sociology
A.B., San Diego State College.

EATON, GERALD G. (1967)..........Assistant in Sociology
A.B., San Diego State College.

ENGLISH, MICHAEL R. (1967) .... Assistant in English
A.B., San Diego State College.

EPTING, ROBERT J. (1967) .... Assistant in Zoology
B.S., San Diego State College.

ESTACIO, PETER (1967) .... Assistant in Chemistry
B.S., University of California, Davis.

ETCHEVERRY, JEAN R. (1967) .... Assistant in Management
B.S., San Diego State College.

EVANS, MARTHA K. (Mrs. D. S.) (1966) .... Assistant in Spanish
B.A., California Western University.

FAIRBANKS, DEBORAH A. (1966) .... Assistant in Biology
B.S., San Diego State College.

FELIX, PATRICIA J. (1967) .... Assistant in Physical Education
A.B., San Diego State College.

FERNANDES, ADRIAN N. (1967) .... Assistant in Industrial Arts
A.B., San Diego State College.

FINGER, RICHARD E. (1966) .... Assistant in Chemistry
B.S., University of Washington.

FISHER, ALICE P. (1967) .... Assistant in English
A.B., San Diego State College.

FLOREN, RAYMOND A., JR. (1967) .... Assistant in Economics
A.B., San Diego State College.

FOSTER, DOUGLAS R. (1967) .... Assistant in Industrial Arts
A.B., San Diego State College.

FRAZIER, DENNIS M. (1967) .... Assistant in Music
A.B., San Diego State College.

FROEHLICH, ROBERT A. (1966) .... Assistant in Chemistry
B.S., San Diego State College.

FRY, MICHAEL N. (1967) .... Assistant in Physics
A.B., San Diego State College.

FUSCH, RICHARD D. (1966) .... Assistant in Geography
A.B., San Diego State College.

GARRISON, TOM S. (1967) .... Assistant in Biology
B.S., University of Utah.

GARSIDE, RUSSELL E. (1966) .... Assistant in Mathematics
A.B., San Diego State College.

GERRY, MICHAEL S. (1967) .... Assistant in Physical Education
A.B., San Diego State College.

GOERSS, HAROLD F. (1966) .... Assistant in Economics
A.B., San Diego State College.

GOLDMAN, CARL A. (1967) .... Assistant in Accounting
B.S., San Diego State College.

GRIFFIN, JOHN H. (1967) .... Assistant in Mathematics
A.B., San Diego State College.

GRIM, RONALD L. (1967) .... Assistant in Industrial Arts
A.B., San Diego State College.

GRISWOLD, WAIT R. (1967) .... Assistant in Chemistry
B.A., University of Cailfornia.

GROVES, JOHN P. (1967) .... Assistant in Speech Arts
A.B., San Diego State College.

GULLEDGE, JON T. (1966) .... Assistant in Sociology
A.B., University of California, Santa Barbara.

GULLEDGE, PATTI JO (Mrs. J. T.) (1966) .... Assistant in Sociology
A.B., University of California, Santa Barbara.

HALVORSON, BRIGITTE L. (Mrs. R. S.) (1967) .... Assistant in German
A.B., San Diego State College.

HEARLE, JOYCE K. (1967) .... Assistant in Speech Arts
A.B., San Diego State College.

HELLER, ANTHONY F. (1967) .... Assistant in English
A.B., San Diego State College.

HENDRIKS, ROBERT (1966) .... Assistant in Chemistry
B.S., San Diego State College.

HENFLING, DONALD G. (1967) .... Assistant in Chemistry
B.A., Occidental College.

HENRY, RONALD L. (1967) .... Assistant in Chemistry
B.S., San Diego State College.

HERZOG, LEON S. (1967) .... Assistant in Physical Education
A.B., San Diego State College.

HIKEL, EUGENE L. (1967) A.B., San Diego State College.	Assistant in Physics
HOEY, IRENE F. (Mrs. J. J.) (1967) A.B., San Diego State College.	Assistant in English
HOGGAN, MARGARET C. (1967) B.S., University of California, Los Angeles.	Assistant in Chemistry
HOLLANDSWORTH, ROGER P. (1967) B.S., San Diego State College.	Assistant in Chemistry
HOLMBOE, LAWRENCE E. (1967) B.S., University of California.	Assistant in Geography
JACKSON, PETER M. (1966) A.B., San Diego State College.	Assistant in Economics
JAMES, ALTON H. (1966) A.B., San Diego State College.	Assistant in Geology
JANES, KENNETH A. (1967) B.A., Harvard University.	Assistant in Astronomy
JOHNSON, GLORIA A. (Mrs. R. G.) (1967) A.B., San Diego State College.	Assistant in Physical Education
JOHNSON, LEE A. (1967) B.A., University of Redlands.	Assistant in Physical Education
JOHNSON, PATRICIA M. (Mrs. L. E.) (1967) A.B., San Diego State College.	Assistant in English
JOHNSON, STEPHEN R. (1967) A.B., San Diego State College.	Assistant in Mathematics
JONES, ANN O. (1967) A.B., San Diego State College.	Assistant in Physical Education
KASCH, MARGARET E. (1967) A.B., San Diego State College.	Assistant in Mathematics
KELLOGG, EDWARD K. (1967) A.B., San Diego State College.	Assistant in Art
KELLY, DELOS H. (1967) A.B., San Diego State College.	Assistant in Sociology
KERN, ANN T. (Mrs. J. J.) (1966) A.B., Dickinson College, Pennsylvania.	Assistant in Speech Arts
KERR, STEPHANIE (1966) A.B., University of Colorado.	Assistant in French
KITCHELL, JOYCE R. (Mrs. C. B.) (1967) A.B., San Diego State College.	Assistant in Art
KOHANEK, JAMES J. (1966) B.S., St. John's University, Minnesota.	Assistant in Chemistry
KOPS, LONI JO (Mrs. S. M.) (1966) A.B., San Diego State College.	Assistant in Speech Arts
KOWALCHUK, EDWARD L. (1966) B.S., University of Toronto, Canada.	Assistant in Mathematics
KULHAVY, RAYMOND W. (1967) A.B., San Diego State College.	Assistant in Psychology
KUTILEK, MICHAEL J. (1967) B.S., San Diego State College.	Assistant in Zoology
LACY, CONRAD M. (1967) A.B., San Diego State College.	Assistant in Sociology
LARSON, CAROL L. (1967) A.B., San Diego State College.	Assistant in Spanish
LAW, BENNY E. (1967) B.S., San Diego State College.	Assistant in Geology
LAWRENCE, THOMAS O. (1967) A.B., San Diego State College.	Assistant in Physics
LAWTON, MICHAEL J. (1967) A.B., San Diego State College.	Assistant in Industrial Arts
LEE, DARRELL T. (1967) A.B., San Diego State College.	Assistant in Zoology
LEE, KWANG TSONG (1967) B.S., University of California.	Assistant in Engineering
LEE, THOMAS B. K. (1966) B.S., University of Adelaide, Australia.	Assistant in Chemistry
LEES, KAREN M. (1967) B.S., San Diego State College.	Assistant in Business Education
LEUNG, KWAI-PUI (1967) B.S., University of California.	Assistant in Chemistry
LOGAN, CHERYL A. (Mrs. J. D.) (1967) B.A., Southern Methodist University.	Assistant in Psychology

LUBY, ROBIN B. (1967)........Assistant in English
A.B., San Diego State College.

LUTZ, RONALD C. (1967)........Assistant in Art
A.B., San Diego State College.

MACQUIDDY, GARY E. (1967)........Assistant in Spanish
B.A., University of the Americas, Mexico.

MALEY, DONOVAN C. (1967)........Assistant in Art
A.B., San Diego State College.

MANCHESTER, WARREN G. (1966)........Assistant in Biology
B.S., University of California, Los Angeles.

MANESS, JOHN H. (1966)........Assistant in Chemistry
B.S., Fort Lewis College, Colorado.

MARTIN, GARY N. (1967)........Assistant in Physical Education
A.B., San Diego State College.

MAY, KATHERINE J. (1967)........Assistant in English
A.B., San Diego State College.

MAYO, FREIDA L. (Mrs. M. M.) (1967)........Assistant in English
A.B., San Diego State College.

McFALL, MARY (Mrs. J.) (1967)........Assistant in English
B.A., University of California, Los Angeles.

McGLATHERY, PATRICIA A. (Mrs. M. N.) (1967)........Assistant in Sociology
A.B., San Diego State College.

McGOWAN, CHARLOTTE (Mrs. J. P.) (1967)........Assistant in Anthropology
A.B., San Diego State College.

McINTIRE, TULLIA A. (Mrs. R. E.) (1967)........Assistant in French
B.A., Salve Regina College, Rhode Island.

McLAUGHLIN, EUGENE C. (1967)........Assistant in Physical Education
B.S., Pennsylvania State University.

McMILLAN, MICHAEL R. (1966)........Assistant in Physics
B.S., University of California, Riverside.

McNEILL, HOWARD G. (1967)........Assistant in Industrial Arts
A.B., San Diego State College.

MEADE, RODERICK J., JR. (1966)........Assistant in Geography
A.B., San Diego State College.

MEGLING, ROBERT C. (1967)........Assistant in Psychology
A.B., San Diego State College.

MIDGETT, RONALD J. (1966)........Assistant in Chemistry
B.S., San Diego State College.

MIGUES, RICHARD E. (1967)........Assistant in Geology
A.B., University of California, Santa Barbara.

MILLER, EDWARD L. (1967)........Assistant in Physics
B.A., University of California.

MITCHELL, MARILYN F. (1967)........Assistant in Physical Education
A.B., San Diego State College.

MITCHELL, WILLIAM C. (1967)........Assistant in Chemistry
B.S., Wisconsin State University.

MOE, JEAN T. (Mrs. S.) (1966)........Assistant in Music
A.B., Santa Barbara State College.

MOELLER, JOHN H. (1966)........Assistant in Physics
B.A., State University of South Dakota.

MONTEFORTE, WILLIAM J., JR. (1967)........Assistant in Zoology
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MORRISON, LAWRENCE C. (1967)........Assistant in Economics
A.B., San Diego State College.

MURDOCK, GARY A. (1967)........Assistant in Physics
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MURDOCK, MARILYN J. (Mrs. G. A.) (1967)........Assistant in English
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MYERS, GABRIELA S. (Mrs. R. A.) (1966)........Assistant in Spanish
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NESS, RACHEL (1967)........Assistant in Spanish
B.A., San Diego State College.

NICHOLS, MICHAEL G. (1967)........Assistant in Biology
B.S., San Diego State College.

NIESEN, THOMAS M. (1967)........Assistant in Biology
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O'DONNELL, TERRY L. (1967)........Assistant in Music
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O'NEIL, THOMAS D. (1967)........Assistant in Mathematics
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OSHIMA, KENNETH A. (1967)........Assistant in Biology
B.A., University of California, Riverside.

PATRICK, MARY ANN (Mrs.) (1967)........Assistant in Botany
B.S., San Diego State College.

PEARCE, MERLE K. (1967)........Assistant in Geology
B.S., Arizona State University.

PERSEN, VICTOR (1967)........Assistant in Political Science
B.A., University of Washington.

PETERSON, RICHARD A. (1967)........Assistant in Physical Education
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PETERSON, SIDNEY E., JR. (1966)........Assistant in Biology
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PHIBBS, CORBETT G. (1967)........Assistant in Zoology
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PHILLIPS, RONALD E. (1966)........Assistant in Chemistry
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PLAZA, ALIHANDRO I. (1966)........Assistant in Chemistry
A.B., University of Hawaii.

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PORTER, RICHARD E. (1967)........Assistant in Speech Arts
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POSCHMAN, KIRK K. (1967)........Assistant in Mathematics
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PRICE, BARRY L. (1967)........Assistant in Political Science
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PRODANOVICH, MILO J. (1965)........Assistant in Chemistry
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PROFFITT, RICHARD T. (1966)........Assistant in Chemistry
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RADFORD, FRANCIS S. (1967)........Assistant in Accounting
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RICHTER, GLENDA K. (1967)........Assistant in English
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RIGHTMER, DAVID A. (1967)........Assistant in Physical Science
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RITTER, ROBERT D. (1967)........Assistant in Marketing
A.B., San Diego State College.

ROBBINS, JOHN R., JR. (1967)........Assistant in Engineering
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ROMANELLI, JANE C. (Mrs. P. B.) (1967)........Assistant in Speech Arts
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ROTH, ROSEMARY J. (1966)........Assistant in Psychology
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ROTHLISBERG, PETER C. (1967)........Assistant in Zoology
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RUBIN, ROBERT D. (1967)........Assistant in Zoology
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RUPERT, FREDERICK R., JR. (1967)........Assistant in Spanish
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RUSSELL, GAY M. (Mrs. H. E.) (1967)........Assistant in Speech Arts
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RUZICH, JOHN C. (1967)........Assistant in Physics
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SAKAGUCHI, BENNY K. (1967)........Assistant in Mathematics
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SAKE, JOYCE I. (1967)........Assistant in Physical Education
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SALAMONE, MICHAEL F. (1967) A.B., San Diego State College.	Assistant in Biology
SANDER, WAYNE J. (1967) M.S., San Diego State College.	Assistant in Management
SAVAGE, MILTON D. (1967) A.B., San Diego State College.	Assistant in English
SAW, JAMES T. (1967) A.B., San Diego State College.	Assistant in Art
SERNA, RAYMOND M. (1967) B.A., California Western University.	Assistant in Spanish
SEYMOUR, ROGER S. (1967) B.A., University of California, Riverside.	Assistant in Zoology
SHARP, GARY D. (1967) B.S., San Diego State College.	Assistant in Biology
SHEASBY, REX R. (1966) A.B., San Diego State College.	Assistant in Mathematics
SHIPMAN, THOMAS E. (1967) B.S., San Diego State College.	Assistant in Marketing
SLEET, DAVID A. (1966) A.B., San Diego State College.	Assistant in Health Education
SLUSSER, RONALD A. (1967) A.B., Occidental College.	Assistant in Physics
SMITH, WILBUR E. (1967) A.B., San Diego State College.	Assistant in Political Science
SOLER-TOSSAS, JOSE A. (1966) A.B., San Diego State College.	Assistant in Spanish
SOLOMON, MARK I. (1967) A.B., San Diego State College.	Assistant in Sociology
SOTTILE, DOMENICO (1967) B.A., University of California, Los Angeles.	Assistant in Italian
SPANGENBERG, ERIC K. (1967) A.B., San Diego State College.	Assistant in Physics
STAFFORD, MARY A. (1967) A.B., San Diego State College.	Assistant in Zoology
STEELE, DANNY G. (1967) A.B., San Diego State College.	Assistant in Psychology
STEIN, JOEL I. (1967) B.A., University of California.	Assistant in Chemistry
STROMBERG, KAREN J. (Mrs.) (1966) A.B., San Diego State College.	Assistant in Sociology
STUART, SAMUEL W. (1967) A.B., San Diego State College.	Assistant in Mathematics
SULZMANN, GISELA (Mrs. K. G.) (1967) A.B., San Diego State College.	Assistant in German
SUMEK, LYLE J. (1967) A.B., San Diego State College.	Assistant in Political Science
SUTHERLAND, RONALD J. (1967) B.A., University of Washington.	Assistant in Economics
SWAN, VIRGINIA J. (Mrs.) (1966) A.B., San Diego State College.	Assistant in Geography
SWEETLAND, JUDY P. (1966) B.S., Fresno State College.	Assistant in Chemistry
SWENSON, MARY S. (Mrs. D. R.) (1967) B.S., San Diego State College.	Assistant in Biology
SYKES, SHIRLEY D. (Mrs. C. F.) (1967) A.B., University of Chicago.	Assistant in English
TEBBEN, E. MARVIN (1967) B.S., Iowa State University.	Assistant in Chemistry
THEOBALD, GILLIAN L. (1967) A.B., San Diego State College.	Assistant in Art
THOMPSON, KENNETH W. (1967) B.S., San Diego State College.	Assistant in Biology
THOMPSON, ROBERTA J. (1966) A.B., San Diego State College.	Assistant in English
THOMSON, JOHN S. (1966) A.B., San Diego State College.	Assistant in Health Education
THORNBURGH, MARGARET H. (Mrs. M. H.) (1967) B.S., University of Missouri.	Assistant in Speech Arts

TOMBLESON, GARY E. (1966) A.B., University of California.	Assistant in German
TOZIER, LEONARD L. (1967) B.A., University of California, Santa Barbara.	Assistant in Psychology
TRAVIS, RUSSELL E. (1967) B.S., Rider College, New Jersey.	Assistant in Sociology
TULLIS, RICHARD H. (1967) A.B., University of California, Los Angeles.	Assistant in Zoology and Biology
TUNG, PAUL P. (1967) B.S., University of Arizona.	Assistant in Economics
URBANAC, CAROLYN J. (1967) B.A., San Diego State College.	Assistant in English
VIGIL, ROBERT A. (1967) A.B., San Diego State College.	Assistant in Spanish
VITTOR, BARRY A. (1966) A.B., University of California, Riverside.	Assistant in Biology
WALDBAUM, RAYMOND P. (1967) B.A., University of California, Los Angeles.	Assistant in Geology
WATANABE, MARK S. (1967) B.S., University of Hawaii.	Assistant in Chemistry
WEILL, LAWRENCE R. (1966) M.S.E.E., California Institute of Technology.	Assistant in Mathematics
WEINER, ROBERT G. (1967) B.S., San Diego State College.	Assistant in Physics
WELCH, OSCAR D. (1967) A.B., San Diego State College.	Assistant in Industrial Arts
WEST, NANCY M. (1967) B.A., Colorado State College.	Assistant in Speech Arts
WHITE, PHILIP H. (1966) L.L.B., University of California.	Assistant in Political Science
WHITE, QUINCY M. (Mrs.) (1966) A.B., San Diego State College.	Assistant in Psychology
WHITE, ROBERT B. (1967) A.B., San Diego State College.	Assistant in Industrial Arts
WICK, BRIAN D. (1966) A.B., San Diego State College.	Assistant in Mathematics
WILLEMS, JAMES R. (1966) A.B., San Diego State College.	Assistant in Political Science
WILLENS, LAWRENCE A. (1965) B.A., San Jose State College.	Assistant in Health Education
WILLSON, CARLTON G. (1967) B.S., University of California.	Assistant in Chemistry
WILSON, CAROL M. (Mrs. M. D.) (1966) B.S., San Diego State College.	Assistant in Accounting
WINGET, BARBARA M. (Mrs. R. R.) (1967) B.A., Florida State University.	Assistant in Psychology
WOLTER, DIEMUT E. (Mrs. G. H.) (1966) A.B., San Diego State College.	Assistant in German
WOODSON, ROBERT J. (1967) B.A., Chico State College.	Assistant in Speech Arts
WRIGHT, RICHARD K. (1967) B.S., San Diego State College.	Assistant in Biology
WRIGHT, SALLY (1967) A.B., San Diego State College.	Assistant in Art
WU, HENRY S. C. (1967) A.B., San Diego State College.	Assistant in Mathematics
YEOMANS, EDWARD M. (1967) B.S., Trinity College, Connecticut.	Assistant in Mathematics
ZANGANEH, RAHMAT (1967) B.A., Colorado State College.	Assistant in Chemistry
ZWICKER, DONNA L. (1967) A.B., San Diego State College.	Assistant in English

EMERITUS FACULTY

WALTER R. HEPNER, Ed.D., President	1935-1952
JULIA G. ANDREWS, M.A., Associate Professor of Art	1947-1957
KENNETH E. BARNHART, Ph.D., Professor of Sociology	1939-1964
DEAN BLAKE, Lecturer in Meteorology	1924-1952

BAYLOR BROOKS, B.A., Professor of Geology	1931-1966
EUGENE P. BROWN, M.A., Professor of Accounting	1947-1966
LESLIE P. BROWN, Ph.D., Professor of Spanish and French	1922-1959
ROY E. CAMERON, Ph.D., Professor of Economics	1929-1963
NORITA N. COMIN, M.A., Associate Professor of Home Economics	1949-1963
HELEN S. CLARK, B.A., Assistant Professor of Mathematics	1952–1967
KATHERINE E. CORBETT, M.A., Associate Professor of Education	1921-1956
LORENZ F. de JULIAN, M.B.A., Lecturer in Marketing	1949-1967
FLORENCE S. DICKHAUT, M.A., Professor of English	1917-1952
ARTHUR T. EMERSON, B.S., Assistant Professor of Mathematics	1952-1964
WALTER B. FORD, B.E., Assistant Professor of Industrial Arts	1953-1963
LULA E. GERMANN, B.S., Supervising Librarian	1925-1956
EDITH C. HAMMACK, B.A., Associate Professor of Education	1911-1950
ISABELLA S. HAMMACK, M.A., Associate Professor of Education	1936-1957
DOROTHY R. HARVEY, M.A., Assistant Professor of Botany	1924-1961
GERALDINE K. HAYNES, B.S.L.S., Supervising Librarian	1931-1961
EVERETT GEE JACKSON, M.A., Professor of Art	1930-1963
FRANK L. JOHNSON, Ph.D., Professor of English	1939-1966
JOSEPH S. KEENEY, Ph.D., Professor of English	1933-1963
JAMES S. KINDER, Ph.D., Professor of Education	1953-1966
RICHARD MADDEN, Ph.D., Professor of Education	1939-1966 (except 1961-64)
MARY MENDENHALL, Ph.D., Professor of Philosophy	1939-1963
VINNIE C. MOLITOR, A.B., Associate Professor of Geography	1914-1938
WALTER T. PHILLIPS, Ph.D., Professor of Spanish	1927-1961
ILSE H. RUOCCO, M.A., Professor of Art	1934-1967
FREDERICK L. RYAN, Ph.D., Professor of Economics	1946-1965
MARION L. SCHWOB, M.S., Associate Professor of Physical Education	1934-1960
FLORENCE S. SHANNON, M.S., Associate Professor of Physical Education	1933-1963
CHARLES R. SMITH, M.S., Associate Professor of Physical Education	1933-1966
LEILA D. SMITH, M.A., Professor of Music	1922-1948
CHRISTINE SPRINGSTON, M.A., Professor of Music	1930-1966
ALVENA S. STORM, M.A., Professor of Geography	1926-1966
RUTH A. TALBOY, M.A., Associate Professor of Home Economics	1947-1963
JOHN A. TERHUNE, M.S., Assistant Professor of Physics	1947-1965
MABEL C. TRAIL, Ph.D., Professor of English	1935-1962
WOLCOTT C. TREAT, Ph.D., Professor of Psychology	1950-1966
HILDE K. WALKER, M.A., Assistant Professor of German	1931-1951
ALFRED E. WHITE, Ed.D., Assistant to Dean of the College; Professor of Education	1946-1964
WILLIAM H. WRIGHT, Ph.D., Professor of Accounting	1921-1962

MEDICAL STAFF

ROBERTSON, FRANK O., M.D.	Director of Health Services
KILLION, JOHN J., M.D.	Physician
LARRABEE, JOHN A., M.D.	Physician
MOON, CHARLES R., M.D.	Physician
NOWLIN, OWEN W. E., M.D.	Physician
RAY, ROBERT C., M.D.	Physician
VANCE, ROBERT W., M.D.	Physician
*BRADFORD, MARY, M.D.	Physician
*KEATES, ALBERT, M.D.	Physician
BANDT, ELIZABETH J., R.N.	Nurse
BROOKS, VERNA L., R.N.	Nurse
CHOHAN, BETTY J., R.N.	Nurse
LICHTENFELD, JUANITA, R.N.	Nurse
MAYS, PATRICIA, R.N., B.S., P.H.N.	Nurse
†RIEKE, EULA R., R.N., B.S.	Nurse
SIMCOX, JOAN, R.N.	Nurse
THOMPSON, ARLENE, R.N.	Nurse
WOODIWISS, FRANCES E., R.N.	Nurse

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*Serving part time
†On leave

MAINTENANCE STAFF

HALLAHAN, TIMOTHY V., A.B.	Chief of Plant Operations
ZEHEL, ALBERT R.	Supervisor of Building Trades
TAYLOR, KENNETH C.	Chief Engineer
GOLOJUCH, FRANK J.	Supervising Custodian
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